N. A. Wood.

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THE WILSON BULLETIN

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THE WILSON ORNITHOLOGICAL CLUB

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The Nebraska Ornithologists' Union.
The Iowa Ornithologists' Union.
The Kentucky Ornithological Society.
The Tennessee Ornithological Society.

Common Tern at its nest, Upper Sugar Loaf Island, Maine. Fig. 33.

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AN ANALYSIS OF A SERIES OF PHOTOGRAPHS OF THE COMMON TERN

BY OLIN S. PETTINGILL, JR.*

From June 21-30, 1930, I made a study of a colony of the Common Tern (*Sterna hirundo* Linnaeus) on Upper Sugar Loaf Island, Maine, the primary purpose of which was to secure a series of photographs illustrative of the nesting activities of this well known species.

Upper Sugar Loaf Island, with an area at high tide of approximately an acre and a half, projects from the tidal-churn where the Kennebec River flows into the Gulf of Maine. It is of ledge formation, with many irregular shelves which rise step-like thirty feet above the tidal line to a more or less level summit. A few scrub conifers grow among the crevices in the rocks, and grass, poison ivy, and certain flowering weeds flourish where the scant soil permits. At the time of my visit there were about 350 pairs of the Common Tern, six pairs of the Roseate Tern (*Sterna dougalli* Montagu) and three pairs of the Arctic Tern (*Sterna paradisaea* Brunnich) nesting on the island.

The behavior of these birds was not notably different from that observed at other tern colonies by various ornithologists. Some of the photographs secured are of interest, however, in that they record certain body attitudes of the birds themselves which are worthy of more than passing notice. Nine of these photographs are presented here in the belief that such studies are always of interest to close students of bird behavior.

The photographs were made with a Graflex camera equipped with a Protar VIIa lens and a double extension bellows, and supported, where necessary, by a Crown A tripod. A burlap blind, with wooden framework, placed six or eight feet from the nests offered sufficient

*The author wishes to extend recognition to the following: Dr. Arthur A. Allen and Mr. George M. Sutton, of Cornell University, Ithaca, N. Y., for their helpful advice in the preparation of this manuscript; Mr. Paul A. Walker, of Bowdoin College, Brunswick, Maine, who accompanied him in this work; and Mr. Stanley W. Hyde, of Yarmouth, Maine, through whose hospitality the stay in the vicinity was made possible.

concealment. With a floor space of six by four feet, and a height of six and a half feet, there was ample room in this blind for two people to work with comparative ease.

Frontispiece. (Fig. 33). Here the parent (sex uncertain), with wings loosely crossed, is about to settle upon the three eggs, one of which has already started to hatch. Most nests in the colony contained three eggs. The nesting-site is characteristic.

Figure 34. Here a parent tern is in the act of feeding a chick beneath the right wing of its brooding mate. The chick was about twenty-four hours old.

This type of "coöperative" feeding of the young was observed to occur in two ways. First, as shown in this photograph, where one adult gave the food directly to the young beneath the breast of its mate; and second, where the food was passed to the bill of the brooding bird who in turn fed the chick beneath it.

Forbush (*cf.* Bent: "Life Histories of North American Gulls and Terns," 1921, p. 276) writes of a similar method of feeding the young among the Least Terns (*Sterna antillarum* Lesson). The first time the male Least Tern appeared, it performed this second type of feeding. The next time, the female refusd to accept the fish, with the result that the male swallowed it.

Among the Common Terns observed on Upper Sugar Loaf Island, no such behavior was noted. If a brooding bird refused to take the fish from its mate, the mate always fed the young directly.

Figure 35. Here a tern is in the act of picking up a film carton which the wind carried to the nest.

The reaction of the returning adult to the presence of the film carton was both interesting and amusing. It approached the nest twice, the second time with its mate (distinguished by several white feathers on the crown), eyeing the object with grave suspicion. After a lapse of six minutes it began pecking at the box in several places in an attempt to pick it up. Finally it secured a satisfactory hold on the flap of the open end and flew with it to a distance of fifty feet out over the water and dropped it from mid-air.

I did not perform any experiments with other objects to determine the tern's attitude toward chance material which might lodge in the nest. The film carton was treated precisely as empty egg shells are treated after the chicks have hatched. Twice I observed terns flying away with such shells which they dropped, invariably, in the water. When I placed another film carton about a foot away from the nest, the returning bird appeared to pay not the slightest attention to it.

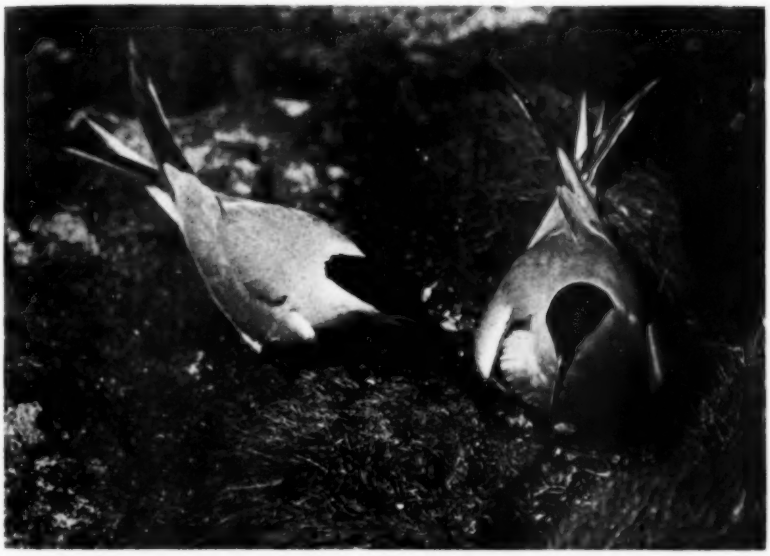

FIG. 34. "Coöperative" feeding.

FIG. 35. Showing stereotyped behavior with a "foreign" object.

FIG. 36. One mate is distinguished from the other by certain white feathers in the crown.

FIG. 37. Both birds exhibiting the brooding instinct.

Fig. 38. Compare the forficate appearance of the tail in Fgure 37 with this figure.

Fig. 39. The bird alighting. Note depressed tail, position of the feet, wings, and body.

FIG. 40. Brakes set. See text for description of this position.

FIG. 41. Horizontal flight.

Figures 36 and 37. These photographs, taken in rapid succession, show an adult Common Tern in the act of pushing its mate bodily from the nest. They were taken two days before the hatching of two chicks from the three eggs contained in the nest.

Judging from the actions of this pair of terns I am of the opinion that the incubation instinct is about equally strong in both sexes at least during the few days prior to the hatching of the chicks. Ornithologists agree that in this species the sexes are colored alike, so it is impossible, in these photographs, to make certain which is the female. For the sake of making our discussion easier, however, let us assume that the bird with the white flecking in the crown patch is the female.

When the male returned to relieve his mate, the female showed no inclination to leave the nest. He circled the nest several times, then flew away for a short period only to return and repeat the act. While standing in the vicinity of the nest he picked up pieces of vegetation, small pebbles, and bits of shells in his mandibles and deliberately tossed them about—sometimes over his back or to one side. He was obviously nervous and annoyed. Finally, as though able to withstand the desire to incubate no longer, he approached his mate and began pushing her bodily from the nest. The female reluctantly gave up her place and flew off as the male settled in the usual manner on the eggs.

As a rule no such behavior as this was noted. When one bird came to relieve the other of the duties of incubation, the shift was made without the slightest delay.

It will be noted, in these photographs, that the wings of the bird which had been incubating are crossed below, not above the tail. This attitude was frequently assumed on the nest. The white flecking in the crown of this individual is noteworthy also. A number of birds in the colony were marked thus, and this variation made it possible to recognize certain birds and therefore to keep a more accurate record of their individual activities and of their reactions to each other and to various elements of their environment.

Figure 38. A Common Tern is hovering above the vicinity of the nest. The wings have just begun the downward stroke. Note the strongly curved position of the primaries of the left wing, and the position of the yielding secondaries of the right wing.

Of particular interest is the fact that the tail in being widely spread has lost entirely its usual forficate appearance. Thus spread, the twelve rectrices are ready to act as a powerful brake should the tail be pressed downward, or, as in the present case, as the greatest

area of gliding surface capable of being produced by the tail alone. It is not functioning, for the moment, primarily as a rudder.

Figure 39. The tern is starting to alight, coming downward more or less vertically.

The tail has been directed downward from its usual horizontal position in flight and is serving as a brake. The feet, too, are extended, partly perhaps, as brakes, and partly in readiness for alighting. The head is, in turn, extended and bent downward, thus shifting the center of gravity forward to some extent.

Figure 40. Here a tern, hovering about four feet above a crest of a cliff, is about to alight.

The feet are extended. The body is in an almost vertical position. The wings, which are now beating forward, rather than directly downward as in usual flight, are loosely held at the wrists; and the tips of the primaries extend forward beyond the body of the wing.

The position of the feathers of the wing is exceedingly interesting. The manus evidently is loosely held, the forward-downward thrust being strongest at the wrist, thus throwing the proximal primaries, which are attached at the wrist, actually in advance of the distals. The distal secondaries, which are not so firmly attached to or connected with the bone as are the primaries, naturally are pulled downward with the primaries as the wrist is thrust downward, though it will be noted that there is a definite gap between the outermost secondary and the innermost primary.

Figure 41. Now, the bird is gliding rapidly forward with wings in a lateral position.

The general features of gliding flight are apparent here. The tail retains the typical deeply forked formation of the *Sterninae*. The legs are drawn partially backward and upward to the under surface of the body. As contrasted with the remiges in the three preceding figures, the primaries are partly folded and directed posteriorly due to an increase in flexion at the wrist.

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ECOLOGICAL FACTORS IN MIGRATION*

BY RUSKIN S. FREER

Students of plant or animal ecology, the branch of biology dealing with environmental factors, have applied the term "endemic" to those forms of life which are confined to restricted areas. It is always interesting to make an analysis of the environmental factors of such areas, with the purpose of discovering just what factor or factors may control plant or animal distribution in the territory occupied by the endemics.

Certain plants or animals may be endemic in a very small area possessing peculiar environmental characteristics, in one section of the country, while in another the same species may be generally distributed. For example, certain plants characteristic of the northern tundra and peat bogs may be very common and have a general distribution in northern Canada, yet be endemic elsewhere, because of the almost complete absence of tundra or bog conditions.

The writer has been interested in the study of what appear to be endemic species of birds near Lynchburg, in the Virginia Piedmont. My early experience in bird study was with the birds of central and western Ohio. For the past seven years my ornithological studies have been mostly confined to the vicinity of Lynchburg. Since making the change in residence, several differences in the bird population have naturally been noted, some of which have been most pronounced when the general bird population around Lynchburg has been compared with the birds found within a restricted area known as the Edgewood Farm. This farm is located just at the southern edge of the city, in the angle between the old Salem turnpike, now better known as the Timber Lake Road, and the old Ward Road leading to Danville, now designated as U. S. Highway No. 170.

Before proceeding with a more detailed characterization of the Edgewood Farm as a bird habitat, some general comparisons of central and western Ohio with the Virginia Piedmont should be made.

Geologically, the Piedmont section is much older. Igneous and metamorphic rocks, particularly quartz, quartzite, schists, and granites, predominate. Rocks from the oldest geologic periods outcrop over much of the Piedmont. Western Ohio is younger geologically, and where surface rocks outcrop, they are of much more recent geological periods. Sedimentary rocks, such as limestone, shale, and sandstone, underlie the whole region.

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*Read before the first annual meeting of the Virginia Society of Ornithology at Richmond, February 13, 1931.

The nature of the soils of the two regions, derived from the rocks, differs greatly. Piedmont soils are largely clay, with an abundant residue of quartzite fragments, mica, and other minerals, resulting from weathering of the country rock. The soils of western Ohio are largely loams, containing much more humus, and consequently are more fertile. Because of flatter topography, these Ohio soils are not being washed away by erosion by surface water and streams, as rapidly as is the case in the Piedmont, with its rough and sometimes mountainous topography.

Climatically also there are marked differences between the two regions. While I have no data on this point, certain facts are obvious. The average annual temperature of Virginia would be higher than that of western Ohio, and the available soil moisture in Ohio is greater than that in the Piedmont. The contrast in moisture conditions is attested by the fact that the climax forest of western Ohio is the mesophytic beech-maple forest, while that of the Piedmont is the more xerophytic oak-hickory. The available moisture in a given region may be expressed by the ratio between precipitation and evaporation for the year, and evaporation is determined by the interaction of several factors, such as sunshine, wind, and temperature, which also affect humidity.

This discussion of climate and soil differences leads up to and doubtless partially explains another fundamental difference, namely, the scarcity of meadows and grasslands in the Piedmont as compared with Ohio. On first coming to Lynchburg I noticed particularly how unusual it was to get a good sod on lawns. Later after more familiarity with the countryside, the same condition was noted with regard to farm crops. Hay and crass crops all seem scanty around Lynchburg as compared with western Ohio. This contrast is even more noticeable in the Piedmont of North Carolina.

In addition to the influence of climatic and soil or edaphic factors, the comparative scarcity of pastures and hay crops in the Piedmont is also due in large measure to different agricultural practice, though it is probably unwise to state arbirtrarily whether this is effect or cause. However that may be, cultivated crops such as corn and tobacco have been grown continuously in the Piedmont from early colonial times. There has been very little stock raising or dairying.

The traveler through northern New York state is struck with the fact that grasses grow there in unusual luxuriance, producing condi-

tions in many places which ecologists refer to as natural parks. Much the same conditions characterize the Valley of Virginia or the famed blue grass regions of southwest Virginia. These sections of the state consequently have more of the species of birds that are found in grasslands.

As a result of different cultural methods, the Edgewood Farm previously mentioned seems to be an exception to the conditions described above as characterizing the Piedmont in the matter of hay and grass crops. On this farm may be found expanses of broad, grassy meadows and alfalfa fields. One can look across several hundred acres of cleared land, most of it in grass or alfalfa, without seeing the clumps of scrub pine so common elsewhere. And here are found, sometimes as residents, but principally as migrants, those species of birds common to the meadows and pastures in states to the west and north.

A list of the spring migrants found on this farm reads like a list of the breeding birds for the more open, grassy country to the north. One group of these has been found only at the Edgewood Farm. This group includes the Upland Plover, Dickcissel, Bobolink, and Savannah Sparrow.

The Upland Plover was seen on April 1, 1927, and on March 25 and April 26, 1930, I saw a pair of these birds. A single bird was seen on April 10, 1931. This species was a fairly common summer resident on upland pastures in Ohio ten or fifteen years ago. My only record for the Dickcissel for Lynchburg was made on this farm on May 27, 1927, when we saw a male and heard its song. This species is a common breeding bird in western Ohio.

The Bobolink, likewise a common breeding bird of the meadows in its summer range, selects the Edgewood Farm for its stops near Lynchburg. One male was listed there on May 18, 1928, another male on April 26, 1930, and a gay company of about fifteen males paid a brief visit on the morning of May 2, 1930. A flock of about fifty males and females was found on May 9, 1931.

Savannah Sparrows by the score stop at the height of their migration in an alfalfa field on this farm, where conditions closely simulate those of the Alleghenian life zone of northeastern Ohio, northern Pennsylvania, and New York state, where this species breeds. The song of the Savannah Sparrow was heard several times on this farm this past spring.

Another group of birds, including the Vesper Sparrow, Prairie Horned Lark, Pipit, Cowbird, and Grasshopper Sparrow, while found occasionally elsewhere than on this farm in the Lynchburg area, occur in much greater numbers here, and possibly in a few instances remain to breed.

Vesper Sparrows are present by the hundreds in the alfalfa field referred to. I have seen them in small numbers elsewhere, and should expect them to breed near Lynchburg, but have no records of their nesting. The Prairie Horned Lark, like the Vesper Sparrow, although frequently found elsewhere, may almost always be found at Edgewood Farm during the spring. This species does breed sparingly around Lynchburg. I have seen it several times during the summer, and a pair nested at the Edgewood Farm this past spring. Incidentally this appears to be the southernmost record of its nesting on the Atlantic slope.

Cowbirds stop at the farm in large flocks numbering one or two hundreds. They may be seen in much smaller flocks occasionally in other places around Lynchburg. I have no records of their breeding, but possibly a few birds remain for the summer.

The Grasshopper Sparrow, a common migrant and summer resident, is very much more abundant at Edgewood Farm than elsewhere in the Lynchburg area.

From the observations recorded above, it would appear that in this farm we have an isolated habitat, a sort of ecological island, surrounded by other and differing ecological conditions. The result is the occurrence within a restricted area of endemic species of birds, migrants and breeders, either entirely absent or found in much fewer numbers through other parts of the same general area.

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PIONEERS IN ECONOMIC ORNITHOLOGY

BY MRS. H. J. TAYLOR

This paper permits only brief sketches of the men who made economic ornithology a scientific and important field of study; its scope does not extend to all who played a part in this pioneer work. Townend Glover and Samuel Aughey were forerunners, while F. E. L. Beal, Stephen A. Forbes, and F. H. King were outstanding leaders. Glover's work was done chiefly in Washington. Aughey, Beal, Forbes, and King were men of the middle west; their respective fields were Nebraska, Iowa, Illinois, and Wisconsin.

"The insectivorous habits of birds have been matters of common observation for centuries, but their scientific demonstration has been reserved for more modern times", said Beal. ("Birds as conservators of forests", page 237.) For many years the farmer and fruit grower faced the difficult problem of finding a remedy for the loss in his crops. Birds were believed to be partly guilty. The early movement for bird protection was largely a sentimental one. The farmer, who saw the birds eating his grain and fruit, was not deterred by the pleas of those who enjoyed the song and color of the bird. But problems are a challenge to investigation. Investigation must be along the lines of sound sense and logic. There, reason will discover truth for itself and action will follow.

Townend Glover, 1813-1883

According to C. R. Dodge[1], "Prof. Townend Glover, the first entomologist of the U. S. Department of Agriculture, was born at Rio de Janeiro, February 20, 1813. . . His mother dying after a few days illness; when he was about six weeks old he was sent to his relatives in England; and upon the death of his father, which occurred some six years later, he was taken in charge by his paternal grandmother and maiden aunt in Leeds, [England]." Glover came to the United States at the age of twenty-three years. In 1863 he was appointed United States Entomologist in the recently established Department of Agriculture.

I have asked a number of persons for their estimate of Glover. A composite of their replies would read somewhat like this: "He made a contribution of value, but few men would work with him and I don't know anyone who could live with him." From that we may judge that he had a striking personality—that he was an outstanding individual—unlike most people.

[1]Life and entomological works of the late Townend Glover, by C. R. Dodge, U. S. Dept. Agr. Div. Ent., Bull. 18. 1888.

FIG. 42. Townend Glover, 1813-1883

Dodge,[2] who was for a time assistant to Glover, says, "By nature the boy Townend was of a reserved disposition, making few close friendships. . . Indifference to country or home, distrust of mankind and of the motives of people about him, self-reliance and wish to be his own master . . . appear on many pages [of his diary] . . . he sailed for America June 24 of that year [1836] . . . married in September, 1840.

"Glover's life was for many years that of a recluse . . . [while in Washington he occupied] a single room . . . in which from choice he ate, slept, wrote, sketched, engraved . . . [it contained] his engravings and writing tables, his bookcases (constructed from boxes), trunks, toolchest, and insect cases, in addition to stove and regular bedroom furniture. . . One who knew him intimately for twenty or more years said of him, 'In his personal habits and intercourse he was peculiar.' He was peculiar even to the verge of eccentricity. In middle life, after a residence of five years in Washington, he said of himself, 'Acquaintances I have made many, but friends none' . . . his self interest was so absorbing that it left no heed for the interest of others. . . In his habits of living he chose to be untrammelled by conventionalities of custom, attending to necessities of existence in a way that offered the least personal inconvenience to himself. So the man who from having moved in the cultured society of his home on the Hudson, had in the performance of duty come to 'herd with negroes and Indians in Demerara, where a white man is as good as a darkey'."

Glover prepared a large number of copper plate engravings of insects. Upon the recommendation of Messrs. Baird and Riley these plates were purchased by the Government for $7,500.

The Report of the Commissioner of Agriculture for the year 1865 contains, pages 33-45, the "Report of the Entomologist" [Glover] in which are made the following remarks upon the basis of which we may include this author among the pioneer economic ornithologists: "The birds mounted in the museum number nearly six hundred, the greater

[2] *Ibid.*

part of them being insectivorous birds of this country. A knowledge of their nature and habits is of as much importance to the farmer and fruit culturist as is the science of entomology; hence the two studies are combined by attaching to each bird a card on which is stated, not only the scientific and common name, with reference to works on ornithology where their history may be found, but also the habits and food peculiar to each, so that the farmer may know his enemies from his friends. In addition to this, the contents of the stomachs of birds, taken at different seasons of the year, have been preserved, and are placed in small boxes beside the specimens . . ." A few pages further along in the same report Glover makes the following comments: "Now we come to the family of thrushes . . . I cannot make this report as full and complete as it should be, on account of the stringent laws here (in Washington) prohibiting the shooting of small birds. So conscientiously law-abiding were the officials, that I could not even get a permit to shoot specimens for examination preparatory to making this report. Yet, notwithstanding this, the markets here in spring are literally overstocked with strings of robins, thrushes, cedar birds, and even bluebirds, which are brought in and sold for food. . . The well known and favorite bluebird is exceedingly useful to the horticulturist and farmer. . . Small boxes put in the trees, or around the dwelling house will invariably attract bluebirds to build in them. They are sometimes turned out, however, by the small and more pugnacious wren, which, after driving off the rightful occupant, leisurely turns out the eggs, barricades the entrance, and takes possession."

Townend Glover worked incessantly. He took no vacation and no recreation. In time his health broke down. The last years of his life were uninteresting to himself and to everyone else. When he was no longer able to reside alone in Washington he reluctantly went to the home of his adopted daughter in Baltimore. She and his wife were at his bedside when he died September 7, 1883. He was buried in Loudon Park Cemetery, Baltimore.

Samuel Aughey, 1831-1912

Little has been written on Aughey. A letter received February 17, 1931, by the writer from Professor Aughey's daughter, Mrs. Helen Aughey Fulmer, states: "My fathers' library and records of work and publications after leaving Nebraska were all lost."

Samuel Aughey was born near Mifflin, Juanita County, Pennsylvania, on February 9, 1831. (Other biographies give February 8 as the date of birth, but the family Bible records it as February 9.) He

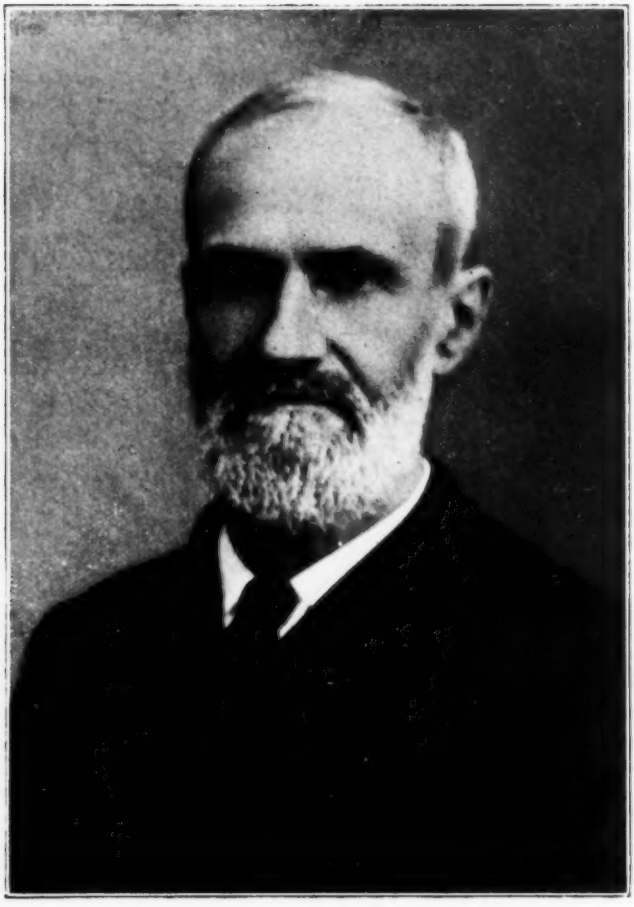

Fig. 43. Samuel Aughey, 1831-1912.

was graduated from Pennsylvania College[3] in 1856. His reports on the food of birds, and later his reports as geologist of territorial Wyoming, being among the earliest, are both interesting and valuable.

On October 15, 1930, I had the privilege of meeting "Nebraska's most distinguished citizen", as the University of Nebraska, in its Anniversary Book, calls Prof. Lawrence Bruner. Prof. Bruner gave me the following information concerning Professor Aughey. He said, "I was the second student to enroll in the University of Nebraska when it opened its doors in 1871. Professor Aughey was my first teacher. He taught the natural sciences as well as botany, German, chemistry, and geology. Students said that 'Aughey teaches the natural sciences and allied languages.'

"Aughey, like myself, was Pennsylvania Dutch. He was a hard worker. Along with his university work he continued to preach. He had a church in Dakota City, Nebraska, and also preached to other nearby congregations. From the time of his arrival in Nebraska, in 1864, he gave much time and study to the grasshopper plague. His work was earnest and sincere, but with so much put upon him, scientific exactness could scarcely be expected. While I was a student at the University Professor Aughey spent a week-end at my home in West Point, Nebraska. He was a lovable personality, and a man of fine quality."

Of Aughey's publications the most important one is entitled "Notes on the Nature of the Food of the Birds of Nebraska", which was published as Appendix II in the *First Annual Report of the United States Entomological Commission for the Year 1877 Relating to the Rocky Mountain Locust*. This report was published in 1878 under the auspices of the Geological Survey, a division of the Department of the Interior. At the time of its publication Aughey's work was reviewed by J. A. Allen, who wrote, ". . . although Mr. Aughey's paper bears especially upon the subject of birds as grasshopper destroyers, it forms at the same time a valuable faunal list of the birds of Southern Nebraska, containing notes relating to the relative abundance and season of occurrence of most of the species." (*Bull. Nutt. Ornith. Club*. IV, 1879, p. 110.)

Cyrus Thomas, writing to C. V. Riley, Chief of the U. S. Entomological Commission, says, ". . . I have been fortunate in obtaining . . . the assistance of Prof. Samuel Aughey, of Lincoln, Neb. . . Having been engaged for a number of years in studying the birds of his State

[3]Organized in 1832. Later the name of the institution was changed to Gettysburg College.

with special reference to their locust-eating habits, his report is quite full and complete. . . This record of the examination of the stomachs of birds is probably the most extensive ever made in this country. The list includes something over 630 specimens and 90 different species, and extends through a period of twelve years." (Page 13 of the Appendices.)

And in addressing Professor Thomas, Aughey writes as follows: "At your request I have reduced to order the somewhat random notes that I have been taking on the birds of Nebraska and their relations to insect life, during the last thirteen years. . . Being convinced from my studies that the preservation of birds is worthy of national attention, I have added to these notes other facts and considerations showing the need of the enactment and the enforcement of laws to protect them." (Page 13 of the Appendices.)

The grasshopper plagues of the sixties and seventies are still fresh in the minds of many in the middle west. The pioneer's all was in the planted field. Various attempts were made to cope with this pest, but they availed little. Dexter Hutchins, of Algona, Iowa, made a machine to catch grasshoppers. Often special prayer meetings were held. If the grasshoppers left it was evidence that divine Providence had stayed the plague. A minister related to me the destruction wrought by a grasshopper plague of the seventies and the effectiveness of prayer in driving them out. "How do you know that prayer did it?" I asked. "How do you know it didn't?" was his reply.

In November of 1930 I received a letter from a friend in Iowa which contained the following information:- "Mrs. W. G. Hatter, of Sioux City, moved to Elk Point, South Dakota, a year after the prayer meeting of fifty years ago. She says that the Catholics called their people together and paraded the streets with banners and prayed all day. Many Protestants joined them. The grasshoppers disappeared, and later three crosses were erected in the vacant lot next to the Montagne School. One of these crosses still remains."

In a paper prepared for the body of the Report of the Commission (*ibidem*, page 339) Aughey says: "Unfortunately the mass of the people have not and do not observe closely what the birds are doing. Hence they are still the victims of prejudice, and their character is rarely appreciated."

Professor Aughey sent out many letters to farmers in an attempt to gather together their observations on the work of the birds. One reply to such a letter is condensed as follows:- "During the last season [1877] I planted a tract . . . in corn. It was on new breaking.

where locusts had laid their eggs . . . the locusts began to hatch . . . and threatened to destroy all my corn. The blackbirds, however, in large numbers, commenced to feed on the locusts, and devoured them almost as fast as they hatched out . . . and I obtained a good crop.—Jacob Heikes, Dakota City, Nebr., October 3, 1877." (*Ibidem*, page 341.)

And later in the same article (pages 343-344) Aughey says, "When I first came to Nebraska, in December, 1864, there were many species of birds far more abundant than they have been during recent years . . . vast numbers were poisoned [by strychnine] around the cornfields. . . It was done under the mistaken notion that the blackbirds were damaging the crops, especially the corn. Great numbers of birds of other species were destroyed at the same time. . . In a single autumn, in Dakota County alone, not less than 30,000 birds must have been destroyed in this way . . . the subject of the protection of insectivorous birds must, or ought, sooner or later, to become not only national, but international."

On November 3, 1930, I received a letter from Professor Aughey's daughter, Mrs. Helen Aughey Fulmer, who writes as follows: "I have vivid memory of hearing my father, during the early years of my life, deplore the killing of birds. It was then the sport, the recreation of boys and men. He was so sure that birds were the farmers' friends that he undertook and carried on the observations and secured these facts. Then with them as a basis he lectured in towns, villages, and before groups of farmers throughout the state to persuade protection of birds in the interest of agriculture. . . Geology was his chosen field of science, but he was so tremendously interested in the new state of Nebraska, and in building up the state university and its museum, that he lent his energies in many directions while there. . . His death occurred in Spokane on February 3, 1912, just six days before reaching his eighty-first birthday. . . A year after his death my mother persuaded me to take his casket back to the old home near Patterson, Pa., where their first child was buried and where she now lies beside them."

Foster Ellenborough Lascelles Beal, 1840-1916

Professor Beal was born in South Groton, Massachusetts, on January 9, 1840. The most complete account of his life has been prepared by Mr. W. L. McAtee[4] from which the following lines are taken. His father "died of tuberculosis when his son was about 8 years of age . . . 'my mother had also contracted the disease . . . she took me [to]

[4]Life and writings of Professor F. E. L. Beal, by W. L. McAtee, *Auk*, July, 1917, XXXIV, pp. 243-264.

Nathaniel C. Day . . . who was her cousin once removed. . . He agreed to take care of me until I was of age. . . I lived with Mr. Day on this farm for the next fourteen years. . . After she [Miss Harriet L. Gray] had worked for him for about a year, they were married. This lady took some interest in me and my tastes. . . I had been so kindly treated by Mrs. Day, that having no other, I had come to look upon this as a home'."

Soon after enlisting in the Civil War Beal was discharged on account of illness. In 1867 he entered the Massachusetts Institute of Technology. At the close of the year he records in his diary, " 'I have been sitting alone studying all the evening, thinking of the past and trying to look forward into the dark, misty future, and wondering what another year has of joy or sorrow, in store for me; but joy or sorrow it matters little which, a few short years and both will be as naught in the light of a higher and nobler future'."

On receiving his degree from the school of Technology in 1872 he went to Crete, Nebraska, where he surveyed for the Burlington Railroad. The open prairie was new field for the study of nature. Of this McAtee writes, "Professor Beal often referred to his experience on this trip; one reminiscence, in particular I remember, related to nighthawks. The birds immediately availed themselves of the newly-laid rails as perches, upon which, according to their custom, they sat lengthwise. They were so abundant, Professor Beal says, that he was certain there were enough nighthawks immediately along the right-of-way, to make a continuous row of the birds on both tracks clear across the state of Nebraska."

In March, 1876, Beal took a position in the Iowa State College of Agriculture, at Ames. During his seven years at Ames he wrote many articles on the birds of Iowa. Most of these articles were published in newspapers, especially the *Iowa Homestead*. The economic value of birds now became his chief interest. He examined the contents of birds' stomachs, and discussed the food habits of various species. At this same time S. A. Forbes was also studying the food of birds in Illinois by examining the contents of the stomach. F. H. King was working on the same problem in Wisconsin. Beal continued this study through the remaining years of his life. It was he who made the oft-quoted estimate that the Tree Sparrows of Iowa annually destroy 196,000 bushels of weed seeds. In 1892 he took a permanent position with the United States Biological Survey, remaining in this service for twenty-four years, or until his death in 1916. During this time he examined the stomachs of 37,825 birds.

Among Professor Beal's published papers, one entitled "Some Common Birds in Their Relation to Agriculture", issued in the Farmers' Bulletin series of the Department of Agriculture, has been reprinted more than fifty times, including over a million copies. His most important non-official paper is, Mr. McAtee thinks, the "Birds as Conservators of the Forest", published in the report of the New York Forest, Fish, and Game Commission for 1902 and 1903. This paper is not only of great scientific value, but it also possesses literary charm.

Professor Beal also furthered economic ornithology by lecturing to various horticultural societies, granges, and ornithological clubs. We have a feeling of gratitude to Mrs. Day. Her mother heart made a home for a lonely orphan child. Her interest in him helped in no small way to give to the world the expression of the life of F. E. L. Beal. The founding of his own home and the inspiring companionship of Mrs. Beal made for him a rich personal life. He died in Branchville, Maryland, when the leaves were falling, on October 1, 1916.

Stephen Alfred Forbes, 1844-1930

The facts herein presented on the life of S. A. Forbes are derived chiefly from the sketch written by his son, Ernest Browning Forbes, at the time of his father's death at Urbana, Illinois, March 13, 1930. Forbes was born at Silver Creek, Stephenson County, Illinois, May 29, 1844.

I met Dr. Forbes but once, but I have talked with those who knew him, and whose interests brought them in close contact with him. Illinois was the place of his birth and his death. It was also the center of his field of labor through all the years of his long and useful life.

Dr. Forbes came from Scotch and Dutch parentage. Three of his forebears served in the War of the Revolution. When, in 1860, the country needed young men to defend the Union, Stephen Forbes responded to the first call and served throughout the war.

The Forbes family was one of Illinois' early pioneers. Theirs was one of the many one-roomed log houses that dotted the newly settled wooded states in the forties and fifties of the last century. Hardship and privation is the common lot of the early settler and the Forbes family was no exception. Was there ever a pioneer farm without the dreaded mortgage? That word and its burdens are an early recollection in the lives of many pioneer children. A college education was the aim of the parents for this family. The desire for an education was ingrained in the children to the point of their determina-

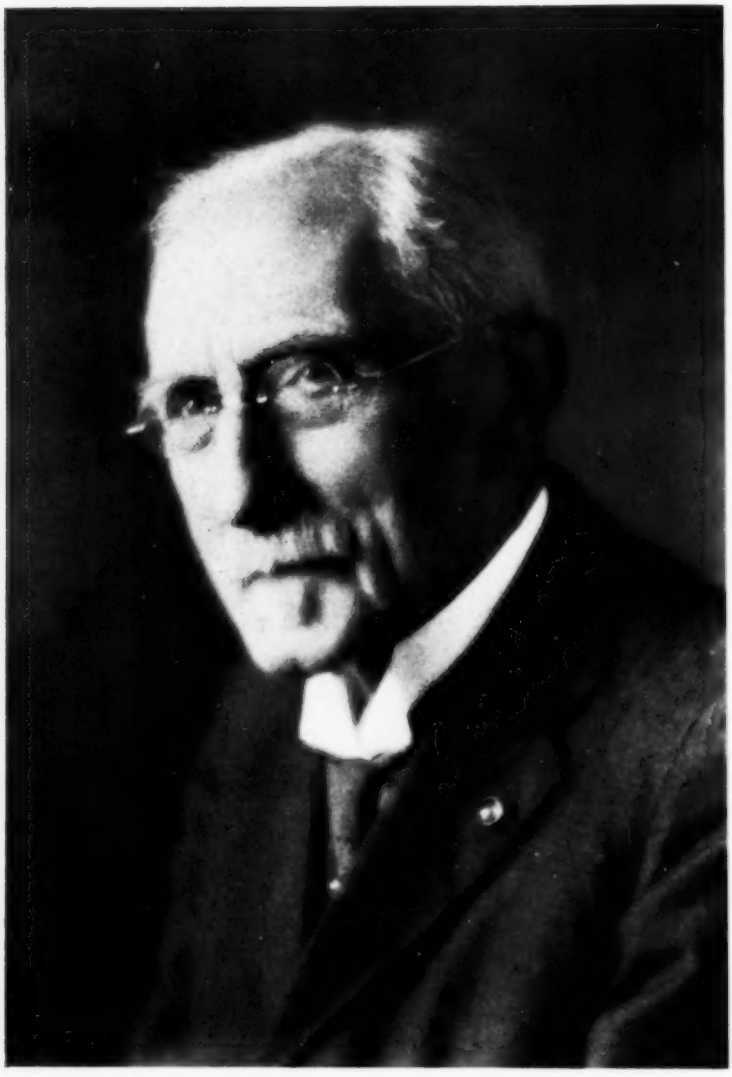

Fig. 44. Stephen Alfred Forbes, 1844-1930.

tion to secure it. A farm of 140 acres, heavily mortgaged, a one-roomed cabin furnished with a cookstove, a dining table, two beds, and a trundle bed, is the home and financial setting when the father died in 1854. Stephen Forbes was then ten years old. His brother, Henry, then twenty-one years old, had made his own way since he was fourteen years old, and was at this time working his way through college. These conditions tested and proved the Forbes family. The brother returned from college and took upon himself the care of the family. Dr. Forbes, looking back on these early years, calls him "our guardian angel".

At fourteen and fifteen years of age Stephen Forbes wrote two essays, "Do Noble Things", and "The Dignity of Reason". No set schoolhouse was needed to demonstrate that Stephen Forbes was a scholar. Wherever he found himself there was his school. He looked upon his four years of service in the Civil War as a course of instruction in a new field. During his four months in prison he studied Greek and Spanish.

Until the University of Indiana, in 1884, conferred the degree of Ph. D. he had no college degrees. In 1905 the University of Illinois conferred upon him the degree of LL. D. One year at Beloit, a year at Rush Medical, and a year at Illinois State Normal seems rather a piecemeal preparation for all that he accomplished. He never ceased his study. He entered the university of life and remained an active student to his last day. In this university Stephen A. Forbes received the degree that time evaluates for service rendered.

Professor Forbes was a zoologist, a botanist, an ornithologist, an entomologist, an ecologist, a limnologist, etc. There was no phase of natural history unfamiliar to him. He founded the Illinois State Laboratory of Natural History, and was its director from 1877 to 1917. From 1884 to 1930 he was a member of the faculty of the State University of Illinois. He once said, "I have never, in university or normal school, received one hour of formal instruction in any one of the subjects I have taught". (University of Illinois Memorial to Stephen A. Forbes.) "His continuous study of plant and animal life of the Illinois River system from 1894 on made the biology of this stream better known than that of any other in the world." (Cyclopedia of American Biography.)

His publications number over five hundred. Though varied in character all are conspicuous because the Forbes stamp of thoroughness and accuracy is apparent. In his study of birds he gives a wide range of data on the life of many species. It is here that he laid the

foundation for a thorough, comprehensive, scientific study of economic ornithology.

In his paper on "The Food of Birds" (*Bull. Ill. State Lab. Nat. Hist.*, Vol. I, No. 3, 1903, pp. 86-161) he says, "Excluding the inhabitants of the great seas, birds are the most abundant of the Vertebrata, occupying . . . the same prominent position that insects do among invertebrate animals . . . their power of flight . . . enables birds to choose their climates and their seasons . . . enables them readily to escape unfavorable conditions, and their immense activity and higher rate of life requiring for their maintenance an amount of food relatively enormous, give to birds in their relation to the pursuits and interest of man a significance which only here and there one seems ever fully to have realized . . . the knowledge we need is such that we shall be able to afford for every species a tolerably correct answer to the questions, What would be the main consequences if this species were exterminated? if it were reduced to half its present numbers? What if it were doubled in number? if it were quadrupled? When this is known, we shall evidently be able to act wisely and with the best results."

In referring to Professor Beal and Professor Forbes Mr. W. L. McAtee wrote, "These two are the founders of the scientific method of studying the economic value of birds." (*Auk*, 1917, page 249.)

Franklin Hiram King, 1848-1911

Townend Glover and Samuel Aughey, as pioneers, opened the field of economic ornithology. King was a contemporary of Beal and Forbes. Franklin Hiram King was born near Whitewater, Wisconsin, on June 8, 1848. He died at Madison, Wisconsin, on August 4, 1911.

King's contribution to economic ornithology is contained in his long paper, "Economic Relations of Wisconsin Birds", which was published in the "Geology of Wisconsin" (Survey of 1873-1879, Vol. I, Part II, pp. 441-610). In the preface he says: "The field work . . . was commenced . . . in July, 1873, and was prosecuted, as time could be devoted to it, until October, 1877. . . The facts recorded in the report were obtained from an examination of the contents of the stomachs of over eighteen hundred birds, sixteen hundred and eight of which contributed results which have been incorporated in the report. The contents of one-half of the stomachs were examined under the hand-lens on the day they were obtained, while the contents of seven hundred and fifty were transferred at once to small apothecary phials containing alcohol. . . The examination of the material which has been collected was completed in June, 1878. . . The valuable results obtained

by Prof. S. A. Forbes in regard to the food of birds of Illinois has been included, and the whole nomenclature has been made to conform with Dr. Coues' new 'Check List of North American Birds'. . . But had it been possible to identify specifically the 7,663 insects, etc., taken from the stomachs of the 1,608 birds, this would have been by far the smallest part of the task set, for then it would be required to command a full and broad knowledge of the economic relations of the insects eaten. . . Birds are insignificant in numbers when compared with the abundance of parasitic and predaceous insects, but their larger size, their active habits, their longer lives, the greater facility with which they move about, and the greater range of country over which they roam, go far toward compensating for smaller numbers."

In the *Bulletin of the Nuttall Ornithological Club* (Vol. VIII, 1883, p. 107) Dr. Elliott Coues, Associate Editor, makes the following comment, in a three-page review of King's paper: "Upon the heels of Prof. Forbes's paper . . . comes the very elaborate result of Prof. Kings' examinations of the food of birds in its bearing upon our agricultural interests. The question—one of great economic importance—seems to be only of late brought forward with sufficient prominence; and it is evident from what these two investigators have accomplished, that our ornithologists have hitherto taken it up, if at all, only after methods entirely inadequate to its solution. . ."

King's life service was given to his native state. "From 1888 to 1901 he was professor of agricultural physics in the University of Wisconsin, the first chair of its kind in America. (National Cyclopedia of American Biography, Vol. XIX, page 292). On the same page (*ibidem*, page 292) mention is made of King's work, "Farmers of Forty Centuries", and concerning it the National Geographic Society is quoted as follows: " 'The first award of the Society from the Grant Squires fund, relating to commerce and industries of the Orient, has been made to the author of "Farmers of Forty Centuries", Mr. F. H. King. This book is an exhaustive study of the methods by which a very populous nation have been so skillfully cultivating their lands for more than 4,000 years that the fields of China are today more fertile than when first cultivated by man'."

Pioneers are prophets in a true sense. From the present they read the dangers and the possibilities of the future. Through perseverance and tenacity they attain. We are their debtors. The debt of gratitude would lose its value if it could be paid. It may be acknowledged. We acknowledge our debt to these pioneers in economic ornithology.

Berkeley, California.

BIRDS OF SOUTHERN LOUISIANA

BY ALFRED M. BAILEY AND EARL G. WRIGHT

[*Continued from page 142 of the June number*]

AMERICAN BITTERN. *Botaurus lentiginosus.* This is a rather common bird throughout the year. They were observed during the past summer at Avery Island, May 13; at Chenier au Tigre, May 23; and in Cameron Parish, June 7. While we found no nests, we saw an immature with down on the head feathers, at Chenier au Tigre. We were going through waist-high grass, collecting Seaside Sparrows. It was a particularly favorable place for cotton-mouth moccasins, for they like to sun themselves upon the matted vegetation. Suddenly, as we were walking along, Bailey was struck a sharp blow upon the hand. It is safe to say that he was considerably relieved when he found it was a young bittern unable to rise from the tangled grass, rather than a moccasin, which had caused him to lose two years' growth.

LEAST BITTERN. *Ixobrychus exilis.* This, the smallest of our herons, is very common throughout the lowlands during the summer. A few winter, it is said, but we have no records. They were so common that specific records are unnecessary. Bailey recorded them common at the mouth of the Mississippi River during the last week in October, 1928, and in Cameron Parish on November 1. Several nests typical of the species, were found at Chenier au Tigre during the latter part of May, 1930. The earliest date we have is a nest with four eggs found by Bailey at Chenier au Tigre, May 6, 1917.

GREAT BLUE HERON. *Ardea herodias herodias.*

WARD'S HERON. *Ardea herodias wardi.* Large herons are common throughout the year. We collected no specimens and made no effort to determine the forms observed. *Ardea herodias herodias* is undoubtedly the common one during the winter months, while *wardi* is given as the breeding subspecies. We found a nesting colony of twenty or more pairs in Cameron Parish among the cypresses. Young of the year were in flight, and others, half grown, were still in the nests. Bailey collected two specimens in this colony in March, 1918, both breeding birds. One was under the minimum in length for *herodias,* and the other was over the maximum for *wardi.* The large size of the *wardi* seems the only diagnostic feature (inasmuch as colors are not dependable) in determining between *wardi* and *herodias.* As the size of the birds in the same colony vary from the minimum of the small form to the maximum of the large one, it will be seen that determining the race to which a bird belongs is rather a difficult task.

AMERICAN EGRET. *Casmerodius egretta.* These beautiful herons are becoming more abundant each year. They were uncommon fifteen

years ago, but they have increased wonderfully, and are now common throughout the marsh country. Flocks of fifteen or more were seen at the mouth of the Mississippi, the latter part of October, 1928, and a dozen or more could be seen at any time near Chenier au Tigre, the first part of December, 1925. The majority of the birds migrate south, but a few remain the winter through. We made motion pictures of the egrets in Cameron Parish, where a dozen pairs nested on Bird Island, the nests usually being placed in the high cypresses. Young were observed nearly full grown, while others had just hatched, on June 1. Mr. Stark showed us a roost in the tules on his property near the gulf; the birds assembled in company with a few Snowy and Louisiana Herons, at sundown, and alighted on the matted vegetation. We estimated that there were more than one thousand birds. We were disappointed in the colony on Bird Island, for it has not increased in size in the last fifteen years. Many Black Vultures hang about the colony, and it is probable that they destroy the young birds.

Snowy Egret. *Egretta thula thula.* This species has also benefited by years of protection, and is now one of the common birds of the marshlands; it was persecuted by the feather hunters until it was on the verge of extinction. Mr. E. A. McIlhenny's heronry on Avery Island is one of the finest examples of practical conservation in the country; he has a small artificial pond in which he planted button bushes and willows, and years ago, when the Snowy Herons were few in numbers, he captured several pairs of young and kept them in captivity over the summer. They were liberated in the fall, and a few returned the following spring and nested; they have returned year after year. Other species have joined them, and there are several thousand pairs of birds now nesting within a few hundred feet of a busy factory. A train runs within thirty feet of the nesting birds, and during the season, hundreds of motorists drive along the roadway to admire the unique sight—all without interfering with the housekeeping in the least. These same birds, so tame in the nesting colony, are far different in the open marsh. They are as wary as any other heron, and when they fly to and from their feeding grounds, they trek high in the air until over their home port, and then descend abruptly upon half-closed wings. There are many colonies scattered throughout the lowlands, but the one at Avery Island is the largest of all. In other colonies, the Snowy Herons prefer to nest among the low growths at the edge of clumps of cypresses. While this is often a common form in winter, by far the greater number move south during the coldest

months. Very few of the Snowy Egrets nest on the offshore islands. At Avery Island, many young birds were half grown on May 15, 1930, while other nests contained fresh eggs.

Louisiana Heron. *Hydranassa tricolor ruficollis.* This is probably the most common of the medium sized herons; it is resident the year around and its distribution is general throughout the lowlands. Many hundreds nest at Avery Island, and the species will be found in every colony of herons. Unlike the preceding, these birds are common on the offshore islands where they nest on the tangled vegetation. They are pugnacious fellows, and as they are armed with strong beaks, they are capable of caring for themselves. Messrs. Arthur and Bailey once found a dead Yellow-billed Cuckoo upon the nest of this species. The heron had jabbed the egg robber in the side of the head.

Little Blue Heron. *Florida caerulea.* This is a common bird, and like the preceding, generally distributed. The majority migrate southward during the winter, but a few will remain during cold weather. While these birds are found in the same colony with other herons, they seem to choose isolated sections for themselves. They are very common at Avery Island, and many photographic studies were made during the past summer. The immatures are white, greatly resembling the young of the Snowy Heron. There are many mottled herons in changing dress in the spring, often referred to as the "calico birds", and Mr. McIlhenny has secured excellent photographs of specimens nesting in their transition plumage.

Green Heron. *Butorides virescens virescens.* This is a common form, but it does not nest in large colonies. The nests will be found in the bushes along bayous and canals, or hidden away in the heavy vegetation along the edge of the swamps. The Green Herons nest in the colonies of other marsh birds, but rarely more than a few pairs will be found within a given vicinity. It is a resident, but the majority winter in the south, the bulk of them returning in March.

Black-crowned Night Heron. *Nycticorax nycticorax naevius.* These birds are common the year around. They may be seen rising from the marsh growth at dusk, as they fly from their resting to their feeding grounds. A few pairs will be found nesting in most of the large heronries, and they are common nesting birds of the offshore islands where their frail platforms are placed on low bushes.

Yellow-crowned Night Heron. *Nyctanassa violacea.* We have no winter records for this species, but it is a common one during the summer. It was not observed so often during the past season, however, as in former years. There were comparatively few to be seen in the

heronry at Bird Island in Cameron Parish and we failed to find a nest, whereas we had no difficulty in locating several in other years. The yellow-crowns are often found nesting in scattered colonies in the deep swamps, where they make their nests in high trees, and they feed in the open marsh. They are prized by the local people as game birds.

Whooping Crane. *Megalornis americana.* This fine bird has been nearly exterminated; few are to be found where it was once a common form. In November, 1916, Messrs. Arthur and Bailey saw three birds at Chenier au Tigre, and several were seen the following fall. Three were reported wintering six miles from the ridge in 1925, and we were told that two were seen during the winters of 1929-30-31. It would seem that this bird will soon be classed with the Passenger Pigeon and the Great Auk.

Florida Sandhill Crane. *Megalornis canadensis pratensis.* The sandhill crane is a rare bird during the breeding season, and as far as we know, is confined to western Louisiana. The only definite nesting record is a downy young one secured by Mr. Stanley C. Arthur in Cameron Parish in the summer of 1917. He kept the bird alive for some time in Audubon Park, and when it died, still in its downy stage, it was presented to the Louisiana State Museum.

Sandhill Crane. *Megalornis canadensis mexicanus.* The Sandhill Crane was formerly fairly numerous in western Louisiana, but it has become rare in recent years. Several large flocks wintered near Cameron Farm in 1919, and they were often seen during the latter part of February. It was a wonderful experience to see these long-winged birds sailing high overhead, and often to hear their gutteral voices when the cranes were so high they were nearly lost in the blue. It is certain that these birds were not resident in the region; resident cranes are few and far between, so they were doubtless the migrating form. Four cranes were observed at Chenier au Tigre. In addition to the young *pratensis* in the Louisiana State Museum, there were several adult cranes from Cameron Parish which doubtlessly belong to *mexicanus.* In 1925, Mr. James L. Peters proposed the above names; it will be noted that he considers the sandhill as a subspecies of the Little Brown Crane.

King Rail. *Rallus elegans.* This common marsh bird is a resident of the state, and several nests were found by Mr. McIlhenny and the adults collected, in May, 1930. Young of various sizes were also taken with the parent birds. A series of adults shows that they vary greatly in color, few of them being as brightly marked as northern birds. Also, they appear to average slightly smaller. Owing to the

rail's secretive habits, they are difficult to observe, but late in the evening or early in the morning of mid-May, we often saw the adults along the edge of the ponds with their broods of black-clothed youngsters. As Avery Island is inland from the Gulf, the marshes are fresh water. No King Rails were observed near salt water, in summer, but they were very common in winter throughout the lowlands. Bailey collected four at Chenier au Tigre, January 15, 1919.

Louisiana Clapper Rail. *Rallus longirostris saturatus.* This is the common breeding form of the brackish and salt marshes. Its nesting habits seem similar to those of the King Rail, except that the one is usually found in fresh water marshes while this form prefers the coastal areas. We have several nesting records: a set of five eggs in low marsh growths on Snake Island, May 12, 1917, and another of nine eggs on Alexander Island the same day. We found a nest on Chenier au Tigre, May 23, 1930, with eight eggs; it was in a little marshy area just back from the ridge. We attempted to photograph the bird on the nest, from a blind, but the rail deserted her eggs. *Saturatus* is a common resident.

Virginia Rail. *Rallus virginianus.*

Sora Rail. *Porzana carolina.* These two forms are common during the fall and winter. When one is tramping the marsh, they will be seen as they rise awkwardly from the grass, with long legs dangling. They often remain late in the spring. We saw a Virginia Rail in Cameron Parish, June 3, 1930. Many of both species are killed by stepping into traps which have been set for muskrats.

Yellow Rail. *Coturnicops noveboracensis.* We saw no specimens during the season of 1930, and although the form is recorded as common, Bailey has observed but one, on Grand Isle, March 15, 1919, a single specimen which was flushed by a dog. We have a specimen, a female, which was collected in the latter place by E. S. Hopkins, on March 31, 1928. Beyer, Allison, and Kopman say the form is fairly common in the rice fields in winter.

Purple Gallinule. *Ionornis martinicus.* This beautiful bird is common in the marsh country during the summer. We have no winter records. We found many nests in the vicinity of Chenier au Tigre and in Cameron Parish; in the latter place we made motion films of the gallinule on her nest, and found that the reactions of the adult on the nest were similar to those of the King Rail—after eyeing the camera lens for a few moments, she began to pull the grass back in front of the nest. Gallinules occasionally plunder the nests of other birds, and on one occasion, at Avery Island, Bailey saw one climb

upon the nest of a Louisiana Heron, look around quickly as though fearing an interruption, and then grab a pot-bellied youngster by the head and run off through the vegetation with the young heron swaying back and forth like a pendulum. We found nests in Cameron Parish with only one and two fresh eggs, June 1, while half grown broods were seen at Avery Island a few days earlier.

Florida Gallinule. *Gallinula chloropus cachinnans.* This is a common form in summer, which is often found nesting in the same region with the above species; in fact, nests were found at Avery Island the past season, within a few yards of the nests of their near relatives. One nest we have cause to remember, was situated in a small isolated clump of button bushes and grass in rather deep water. It was ideally located for photographic purposes, until we discovered (or had it impressed upon us) that a hornet's nest was hidden eighteen inches above the eggs.

Coot. *Fulica americana.* These birds, locally known as *Poule d'eau*, are extremely abundant during the winter. They begin to arrive early in October, and they are characteristic birds of the marshes until late in spring. A few remain throughout the summer, and we believe those observed in Cameron Parish the first week of June, 1930, were breeding. We have no proof, however, other than that a Coot flushed from a tangle of water plants in which was a newly constructed nest. Purple Gallinules were building in the same vicinity.

Black-necked Stilt. *Himantopus mexicanus.* This form is a common one, locally. The stilts prefer open lagoons with muddy shores, and their eggs are laid upon the bare ground in sparse vegetation. The courtship antics of these birds are interesting; they gather in a group, and males will crouch over, wings held open horizontally, quivering up and down. They keep up a continuous indescribable screeching, the birds running back and forth, stopping momentarily with open wings, crouching, and then going through the whole performance again. Stilts were common in Chenier au Tigre in the spring of 1917, 1918, and 1919, but canals have been dug through the marshes, and the water level lowered, so conditions are no longer favorable. Several nests with three and four eggs were found in this vicinity May 5, 1917 and May 11, 1918. In regard to their courtship, Bailey records under the latter date, "the stilts are peculiar birds, and when disturbed near the nest, they crouch down and ruff out their breast feathers and scold in high-pitched voices. When excited, they jump in the air, fluttering their wings, for all the world like a yell leader at a football game; and again, they often hold their wings horizontally, quivering and calling monotonously."

We found three downy youngsters which had just left the nest, in Cameron Parish, June 3. The nest was upon the bare mud of a canal bank. The long-legged babies had no objection to water, and paddled lustily along after they had waded beyond their depth.

Woodcock. *Rubicola minor.* We have few records of this species. Mr. McIlhenny reports them more common at Avery Island during the winter of 1929-30 than for many years previous. Bailey saw a few birds at this locality in November, 1918, and others in a "branch" at Bogalusa the first week in March, 1917. They can no longer be considered a common form, except possibly in a few areas. We were told that hunters sometimes used lights to locate Woodcocks.

Wilson's Snipe. *Capella gallinago delicata.* This species is a common one in the coastal marshes, in many places. They prefer wet, muddy areas with suitable cover, in preference to the deep marshes. They arrive early in the fall and are abundant until December, again becoming common in February and April. Their occurrence is irregular, however; they may be abundant in a given locality one season, and few will be seen in the same place the following season at the same time.

Dowitcher. *Limnodromus griseus griseus.*

Long-billed Dowitcher. *Limnodromus griseus scolopaceus.* Both forms occur commonly during the fall, winter, and spring; they are often seen in large flocks along the tidal flats, and at times they are very tame. Non-breeding individuals remain all summer. There is such individual variation in these birds that it is practically impossible to positively distinguish between them. The "bird observer" is unfortunate, for the plumage of the sexes is the same, so it is impossible to tell whether a live bird is a male of one form or a female of the other. Three specimens collected June 11, 1930, along the east coast, would probably be referred to *griseus.*

Stilt Sandpiper. *Micropalma himantopus.* We have but one record for this species, one collected in a marshy area back of Chenier au Tigre, April 6, 1919, by Bailey.

Knot. *Calidris canutus rufus.* This species is a rare straggler along the coast. Two in high plumage were collected by E. Kalmbach on Errol Island, June 6, 1919, and Wright took one, a female in gray plumage, off the east coast, June 9, 1930.

Pectoral Sandpiper. *Pisobia maculata.* This is a common form in spring and fall, but we have no winter records. It is often seen in grass-grown marshy areas. A few were observed at Avery Island as late as May 11, and Wright collected one on this date.

WHITE-RUMPED SANDPIPER. *Pisobia fuscicollis.* This is not a common bird, according to our experiences. They were quite plentiful, however, during the first week in May, 1930, and Messrs. McIlhenny and Wright secured a half dozen highly plumaged specimens. We have no winter records.

LEAST SANDPIPER. *Pisobia minutilla.* This is a fairly common bird during migration, when it may be seen in flocks, associated with Red-backed and Semipalmated Sandpipers. A few stragglers remain during the summer, and several were observed on Breton Island, June 9. They were fairly common on Avery Island, May 7, and at Chenier au Tigre, May 22, 1930.

RED-BACKED SANDPIPER. *Pelidna alpina sakhalina.* This is a common bird during migration, and usually they are plentiful along the coast during the winter. A few remain throughout the summer. They were very common in Vermilion Parish, November, 1916, and the following spring, many were observed at Chenier au Tigre. Specimens collected on May 5 were acquiring their new plumage, and were full of pinfeathers. They were numerous March 6, 1917, at the same station, and were common on Lost Island, December 8, 1918. They may be seen feeding upon the tide flats in company with other species.

SEMIPALMATED SANDPIPER. *Ereunetes pusillus.* These little pipers are common during migration, and often during the winter. They arrive on the coast early in October; they were numerous at the mouth of the Mississippi, October 25, 1928. They seem to be irregular in their occurrence, however, for they may be plentiful in a given region one season, and none will be observed the following year in the same locality. We have records for all seasons except midsummer. It is a wonderful sight to see great flocks of these graceful sandpipers as they perform their aerial evolutions, turning and twisting, now flashing their white underparts, and again, as they turn their gray backs to the observer, nearly fading from view.

WESTERN SANDPIPER. *Ereunetes mauri.* This is a fairly common species during the migration, and often, during winter. Many were observed in Vermilion Parish in November, 1916, and several flocks were seen daily at Chenier au Tigre in early December, 1925.

SANDERLING. *Crocethia alba.* Sanderlings are abundant during migration, and a few remain during the winter. They are very common along the coast during the early spring, and several were observed on Breton Island the first week in June. The majority noted in May were in their gray and white plumage.

Greater Yellow-legs. *Totanus melanoleucus.* This is not an abundant form, according to our experiences. It is found all along the coastal marshes, but not in as great numbers as are many other species. They arrive early in the fall. For a few specific dates, Bailey records, "common in Bayou German, Vermilion Parish, November 17, 1916, Chenier au Tigre, May 5, 1917; few noted in Cameron Parish, November 1, 1928." We have no records for midwinter.

Lesser Yellow-legs. *Totanus flavipes.* The Lesser Yellow-legs occur in the same localities and are about as numerous as the preceding species. We find, however, that the majority of our records are for the spring months. A few were observed at Chenier au Tigre, May 5, 1917; they were common the following year on March 15 and April 6, 1919. During the spring these birds are pugnacious, and on the latter date Bailey records, "the yellow-legs were fighting like game cocks all over the tide flats."

Solitary Sandpiper. *Tringa solitaria solitaria.* This is a common form and is generally distributed during the migration in early spring and fall. We have no winter records. Many return from the north early in September, and they become scarce by the latter part of November. They are rather common during April, but the majority leave for the north early in May.

Eastern Willet. *Catoptrophorus semipalmatus semipalmatus.*

Western Willet. *Catoptrophorus semipalmatus inornatus.* Willets are common along the gulf coast the year around. It is probable that the wintering birds are *inornatus*, although we have no specimens on hand to verify this. Beyer, Allison, and Kopman, and Arthur call the breeding bird *inornatus*, but Bent has identified all specimens he collected in Louisiana and Texas as *semipalmatus.* A study of the measurements of eight breeding birds from Chenier au Tigre is interesting. They measure as follows:

	Culmen	Wing	Tarsus
4064 ♀	58	203	57
3865 ♀	61	200	60
♀	62	205	60
4197 ♀	59	208	64
4143 ♂	60	196	60
4195 ♂	55	190	55
4198 ♂	58	195	58
4196 ♂	56	199	56

If one compares these measurements with those given by Ridgway, it will be seen that the Louisiana breeding birds are intermediate

between *semipalmatus* and *inornatus*, and as some author has said, "could with equal propriety be referred to either form".

Some of the specimens appear typical of *semipalmatus*, while others are less heavily barred below and are slightly lighter above. Willets are common nesting birds all along the coast and on offshore islands; they are exceedingly tame, and give an intruder in their midst a noisy reception. They gather in small bands to hurl recriminations at one's head, when a breeding area is invaded. The nests are rather well constructed and are well hidden in the grass, and, as with other shore birds, are hard to find.

Bartramian Sandpiper. *Bartramia longicauda*. This species has become rare of late years, and our only observations are from the vicinity of New Orleans where a few birds were seen during the middle of March, 1917. It was once a common and well loved game bird of Creole hunters, but due to persecution over a great part of its range, its numbers are now woefully few. We have no winter records. There are a half dozen specimens in the Chicago Academy collection, taken by Beyer at New Orleans in the spring of 1890.

Buff-breasted Sandpiper. *Tryngites subruficollis*. We have only two records; on February 27, 1919, Bailey collected a specimen at Cameron Farm, Cameron Parish, and from the same region two were taken by Thomas Hoffman about August 12, 1919.

Spotted Sandpiper. *Actitis macularia*. This is a common form in spring and fall, and a few may be seen during the summer months. It is not a bird of the tide flats so much as it is of the mud banks of fresh water streams, so it is more apt to be seen in the interior of the state than along the coast. We have no winter records.

Long-billed Curlew. *Numenius americanus*. This form is not abundant during migration, but it was recorded on many of Bailey's trips along the coast. None was observed during the fall migration, but a few were noted during the months of January, March, and April at Chenier au Tigre, and two stragglers, a late record, on the Chandeleur Islands, June 7, 1918. Invariably the long-bills were found upon the tidal flats where they were feeding upon fiddler crabs.

Hudsonian Curlew. *Numenius hudsonicus*. These fine birds are rather common at Chenier au Tigre during migration. A few may winter (we have no winter records), but the majority pass south of this region. At times they may be seen in flocks of one hundred or more as they rest upon the mud bars or feed on fiddler crabs on the tide flats. A few specific dates are as follows, for the Chenier: November 17, 1916, a few noted; May 6, 1917, common; May 11,

1918, common; April 6, 1919, several flocks observed. On this date one was taken which was very thin, as though just in from a long flight. The men of the Chenier said the birds seen on this date were the first for the spring. A couple of dozen late stragglers were seen May 22-27, 1930, at the same place.

American Black-bellied Plover. *Squatarola s. cynosurae.* The "sea pigeon", as the Creoles call this plover (*Pigeon de mer*), is a common resident of the coast. They are abundant during migration in the spring and fall, many remain throughout the winter, and stragglers in gray plumage may be seen throughout the summer. We have recorded them on every trip to the coast, regardless of the season—in fact, no bit of wind-whipped beach would seem like Louisiana without these fine shore birds to complete the picture. Our notes for this species, under the different months from November to May, are always the same, namely, "common". Strangely enough, we have never, to our knowledge, observed the Golden Plover in Louisiana, although a close watch was kept for it on every field trip.

Killdeer. *Oxyechus vociferus.* These birds are very common in the fall, winter, and spring, their distribution being so general that specific occurrences are unnecessary. They are rather common during the summer, and they nest regularly at Chenier au Tigre and in Cameron Parish. We saw many nesting pairs in both localities during the season of 1930. In the latter place, the birds seemed to nest along the highways, possibly because of the safety given from high water by the slightly elevated roads.

Semipalmated Plover. *Charadrius semipalmatus.* This is a common form during spring and fall, but we have never seen it in such large bands as other shore birds. They arrive from the north early in September—many were seen at the mouth of Main Pass during October, 1928—and by November, the majority pass south of our borders. We have no winter records. They are most abundant in April, as they return from the south. We saw a few at Avery Island, May 10-15, but failed to record the species in other localities.

Wilson's Plover. *Pagolla wilsonia wilsonia.* This is the common summer form along the exposed sand beaches. They nest all along the coast and offshore islands, and their plaintive notes may be heard at all times of the day. They lay their eggs in slight depressions in the sand, and when an intruder comes near, they creep away and then run back and forth, calling plaintively in their efforts to attract attention from the nest. On Breton Island, Messrs. Arthur and Bailey found a nest by back-tracking a nesting bird through the fine

beach sand, the dainty footprints being easy to follow. We doubt that the species winters in any numbers along the Louisiana coast.

RUDDY TURNSTONE. *Arenaria interpres morinella.* Turnstones are common all along the coast. They are found at all seasons of the year, as many non-breeding birds remain throughout the summer. They work along the beaches, and are especially busy when onshore winds are rolling the waves high; then the shore line is continually changing and these agile fellows find an abundant food supply. On one occasion, June, 1919, on the mud lumps at the mouth of the Mississippi, Bailey saw turnstones breaking and eating eggs of the Caspian Terns.

OYSTER-CATCHER. *Haematopus palliatus.* These fine shore birds are summer residents of the offshore islands, the majority being found off the east coast. A pair noted during June, 1918, on the bird islands east of Marsh Island, is the only record we have west of the river. These birds are far from common; in fact, one may visit many localities without a sight of one. During the past season we cruised for a week among the bird islands, and saw them only on North Island—six birds. We searched carefully for nests, in the hope of making motion pictures, but were unsuccessful in finding one. We have a few records from other years. Bailey found a nesting pair, June 7, 1918, on the Isle de Pitre. Dr. T. Gilbert Pearson captured the young one, a half grown bird; it had brown eyes, with a brown eye-ring, and the bill was of dark ochre with scarcely any sign of red. The adult has a bright coral red beak, yellow eyes, and flesh-colored legs and feet. Other records are: two noted on the Chandeleur the same date, one on Free Mason Keys, June 7, 1919, and two at Elephant Pass the following day. The boatmen tell us that one may expect to see a few birds in the same localities.

BOB-WHITE. *Colinus virginianus.* Avery Island is the only locality south of the Southern Pacific tracks from which we have recorded quail. There, owing to ideal conditions, and protection offered them by Mr. McIlhenny, they are still numerous. The cheery "bob-white" of the male is only one of the incentives for the field man to be out early in the morning. According to Mr. McIlhenny, nesting begins the latter part of April. Specimens at hand are much smaller than typical *virginianus*, but we have not sufficient material for comparison at this time.

ATTWATER'S PRAIRIE CHICKEN. *Tympanuchus americanus attwateri.* This form seems doomed to extinction within the state. If any survive, it is in the western part, along the Texas border. Bailey records the species but once, February 26, 1919, at Cameron Farm,

Cameron Parish, when two birds were flushed. During the past season, we worked on the same farm, and we were told that no "chickens" had been seen for years.

Mourning Dove. *Zenaidura macroura carolinensis.* This bird is a resident, but is much more numerous in winter, when northern birds arrive, than in the summer. It is generally distributed over the higher portion, especially about the fields. They nest rather commonly within the area covered by this paper, and we found them commonly during May. Several nests were found in the live oaks, and some of them were substantial affairs in comparison with the fragile platforms usually built. As the doves are considered game birds, thousands are shot during the open season.

Turkey Vulture. *Catharta aura septentrionalis.* This is a common resident of the region, but it is not so numerous as the next form. It is more abundant during winter, when northern birds have congregated near the marsh country.

Black Vulture. *Coragyps urubu.* Common resident. The two vultures are rather unpopular with the trappers of the marsh country, for the birds have the unfortunate habit of destroying the pelts of fur bearing animals caught in traps. They are found all over the south, and act as scavengers in many of the little backwoods communities. In spite of the fact that the birds nest commonly, and Bailey made several trips especially to find nests, he never succeeded in doing so. We found the form too numerous in the heronry in Cameron Parish, and have no doubt that the failure of the colony to increase in size can be laid directly to the plundering of nests by these black pirates.

Swallow-tailed Kite. *Elanoides forficatus.* This species is rare in Louisiana. In three years' field work, Bailey failed to record it. There is a specimen in the Louisiana State Museum taken by E. S. Hopkins on Grand Isle, Louisiana, in April, 1927, and Mr. Hopkins informed us he had seen two others in the same locality in April, 1930.

Mississippi Kite. *Ictinia mississippiensis.* This is another species which has been recorded as common, and yet one may take trip after trip along the coastal marshes and fail to record a specimen. It is a summer resident, however, and during the seasons of 1917, 1918, and 1919, Bailey saw a pair which nested in a great tree on Avery Island. Mr. McIlhenny said the birds had been using the general site for many years. During the past season we saw a single bird near New Iberia, but none was observed at Avery Island, where they were always found in other years. On May 25, at Chenier au Tigre, we saw six of these fine little fellows sailing westward along the coast. They were

so low they barely cleared the tall live oaks, so we had a good opportunity of observing them as they passed overhead.

MARSH HAWK. *Circus hudsonius.* This is a very common bird during the early fall, winter, and spring. It is said to nest in the southwestern part of the state (in Cameron Parish), but we saw only one specimen during our trip of 1930. They are the most numerous of the birds of prey, however, at other seasons. In 1928, they were common at the mouth of the Mississippi by the middle of October. Owing to the fact that Marsh Hawks occasionally destroy fur in traps, and take crippled ducks, they are not held in high esteem by the people of the marsh country.

SHARP-SHINNED HAWK. *Accipiter velox.* This bird is seen occasionally over the marsh; it is far from being a common form, but a few will be seen on each trip in the fall and winter. Bailey collected one November 17, 1916, along Vermilion Bay.

HARRIS'S HAWK. *Parabuteo unicinctus harrisi.* This is a rare species. Mr. McIlhenny has secured a few specimens from time to time, at Avery Island. One, a female, was taken on October 1, 1918, and is in the Louisiana State Museum.

RED-TAILED HAWK. *Buteo borealis borealis.* A common winter bird; they prefer wooded areas rather than the marsh country, but pairs may be seen sailing over the ridges along the gulf at any time of day, and the familiar cry of the red-tail is one of the characteristic sounds of mid-winter.

RED-SHOULDERED HAWK. *Buteo lineatus lineatus.*

FLORIDA RED-SHOULDERED HAWK. *Buteo lineatus alleni.* These hawks are fairly common in the marsh country; the former occurs in winter, while the latter is said to be the breeding bird. We took no specimens to verify the identification. Several were noted at Avery Island during May; in fact, one would have to be a poor observer not to see one form or the other on any trip along wooded bayous.

BALD EAGLE. *Haliaeetus leucocephalus.* These birds are generally distributed in the southern part of the state, making their nests in the great cypress trees—usually in the dense swamps. Two nests, however, which Bailey has examined, were in rather isolated clumps of trees along Black Bayou in Cameron Parish, and one of them was scarcely thirty feet from the ground. This nest contained a newly-hatched young and an addled egg on February 27, 1919. On Avery Island, February 2 of the same year a nest in a great cypress contained two large downy young. As hunters try to kill eagles at every opportunity, the birds are becoming rare, and have no chance to rear

their young except in remote regions. One will occasionally be seen sailing over the marsh, but it is a fortunate observer who witnesses such a sight.

Duck Hawk. *Falco peregrinus anatum.* These fine fellows are often seen during winter and at migration time, over the marshes. At least six individuals were making life miserable for the Sanderlings on Timbalier Island during November of 1916, and although we sympathize with the Sanderlings, there is no grander sight in nature than a fast flying Duck Hawk as he swoops upon a victim. Several birds were noted at the mouth of the Mississippi River during October, 1928. We speak of a hawk as being common if we see a few on a given trip, while ducks are rare if we see one hundred during the same time. There is no such thing as a common hawk, with the single exception of the Marsh Hawk, for one will travel long distances and see only a few birds.

Pigeon Hawk. *Falco columbarius columbarius.* These fine little fellows are more numerous than the above, but one will not see many on a week's excursion. They are occasionally seen in the marshes or wooded ridges, and they secure an easy living among the flocks of small birds. One, collected on Chenier au Tigre during December, 1925, had been feeding upon Myrtle Warblers. A few were seen at the mouth of the Mississippi River the last week in October, 1928 (Bailey), but we did not observe the species during the trip of 1930. Mr. Hopkins collected a female on the Chenier, March 10, 1931.

Sparrow Hawk. *Cerchneis sparveria sparveria.* These handsome fellows are found about the ridges in the fall, winter, and spring, but we have no summer records from the coastal plains. They are not numerous, only a few being seen in a given region. A dozen or more were observed along the Mississippi the latter part of October, 1925, however, on the run from Buras to Pilot Town, and two lived in the trees near "Chateau Canard", the shooting lodge of Mr. Joseph Leiter.

Osprey. *Pandion haliaëtus carolinensis.* Again we must differ from the opinion of other writers of the birds of this region; this is another hawk which is far from "common". It is a resident of the state, however, nesting in limited numbers, but the only nest we have seen was in a large lake on Avery Island, during May of the past season. The site was a beautiful one, high up in a dead cypress, and the bulky nest decorated with waving Spanish moss. We saw but one other bird, on Chenier au Tigre, May 23.

Barn Owl. *Tyto pratincola.* Barn Owls frequent most of the oak ridges, and several pairs have nested on Chenier au Tigre for the last

fifteen years. They are resident wherever found, and are well distributed over the southern portion of the state. We were shown the nest of an owl of this species on the Paul Rainey Reserve; it was in a box placed high up in the warden's watch tower. The tower was several miles from the nearest timber, so the barn owl in this case had the extensive marsh as his hunting country. Muskrats and Boat-tailed Grackles seemed to make up a good percentage of the food of this particular pair, as was shown by the pellets. Often times the nests are in abandoned buildings, or in buildings in use only a part of the year. While this species is nocturnal, birds are often flushed during the day. Three young were hatched in the box mentioned above, in 1931, the first on March 7, the last five days later.

Short-eared Owl. *Asio flammeus.* Wright flushed an owl from the roadway at night, on Avery Island, May 21, which he identified as this form. It was seen by Wright, his brother, and Mr. Komarek, so there can be little doubt of the identification, although it seemed late in the season. In three years' field work, Bailey did not record this species. Mr. Hopkins collected a specimen at Buras, March 4, 1931.

Florida Screech Owl. *Otus asio floridanus.* Screech owls are to be found in all parts of the state; as they are nocturnal, they are heard more often than seen, so one has little opportunity to observe them. Two specimens collected at Chenier au Tigre proved to be this subspecies. Several families live in various parts of Avery Island, and we have observed or heard them at the mouth of the Mississippi, on Pecan Island, and in Cameron Parish.

Great Horned Owl. *Bubo virginianus virginianus.* These fine birds are not numerous, but they are widely distributed. A pair has nested for many years back of Mr. McIlhenny's home on Avery Island; he protects the owls until they become too numerous, and then a few are killed. These horned owls secure an easy living, for they have thousands of nesting herons within a few yards of their home. The owls nest early, of course, before the herons are in numbers, but there are many other species of wild fowl to choose from in February and March. A few of these owls may be found upon the ridges bordering the gulf, and Bailey observed one or two from time to time at Chenier au Tigre, the last record being in December, 1925. The birds are resident wherever found.

Burrowing Owl. *Speotyto cunicularia hypogaea.* Records for this owl for southern Louisiana are few; Bailey collected one on Chenier au Tigre, March 6, 1918, and another on December 10, 1925. Both proved typical *hypogaea.* Mr. Hopkins collected three specimens on

Grand Isle, one in April, 1926, and two the following April. All were dark colored birds, and one is now in the Louisiana State Museum, and one in the collection of the Department of Conservation.

YELLOW-BILLED CUCKOO. *Coccyzus americanus americanus.* These are very common birds throughout the lowlands in spring, summer, and fall; they are often flushed from the thickets far out in the marshes, at which time they dart rapidly back and forth through the fast growing vegetation. We found them very common on Chenier au Tigre in May, and on the bird islands in the gulf during June. On June 3, 1917, Bailey and Mr. Arthur found a cuckoo dead upon the nest of a Louisiana Heron, where it had undoubtedly been killed by a thrust from the heron's beak. We were told that the cuckoo often eats the eggs of other birds.

BELTED KINGFISHER. *Ceryle alcyon alcyon.* This species is not common during summer; a few may be seen daily along the canals and bayous in almost any part of the marsh country during the fall, winter, and spring, but during the past season our only records were from Avery Island, where several birds were seen.

SOUTHERN HAIRY WOODPECKER. *Dryobates villosus audubonì.* Fairly common in the wooded regions, usually, although we did not record an individual during the past season. They are seen most often when one is sitting quietly in the woods, especially in the fall when deciduous trees have dropped their leaves.

YELLOW-BREASTED SAPSUCKER. *Sphyrapicus varius.* This is not a rare bird in winter in wooded portions of the coastal plain. We have not recorded it from Chenier au Tigre during the several winter trips, but they are seen quite often at Avery Island. Mr. McIlhenny reports them fairly common, at times. Many were seen on the Chenier during March, 1931.

PILEATED WOODPECKER. *Phloeotomus pileatus pileatus.* The Cock of the Woods is becoming rare over most of the range; the heavy swamps bordering Avery Island are ideal, but the birds are far from numerous. From one to a half dozen were observed on practically every excursion into the swamps during the seasons of 1917, 1918, and 1919. During June, 1919, three were seen in the orchard back of Mr. McIlhenny's home. Wright observed one in a cypress, June 10, 1930. Owing to the birds being so large, they offer a target to thoughtless hunters, and are in need of careful protection.

RED-HEADED WOODPECKER. *Melanerpes erythrocephalus.* Not a common form of the swamp country. As with many forms, Avery Island is the best place to observe this species. A few were noted

in New Iberia, May 10, and a few daily, probably the same individuals, at Avery Island. We found that even in this southern part of its range, the red-head is being killed by automobiles, for one was observed in the road between New Iberia and Avery Island. It nests sparingly.

RED-BELLIED WOODPECKER. *Centurus carolinus.* This is the common woodpecker of the forested areas of the lowlands; they are resident, and are seen daily in practically any of the southern woods. Several specimens were collected on Avery Island, and they averaged considerably smaller than northern breeding ones.

FLICKER. *Colaptes auratus auratus.* Common during winter in open wooded areas; uncommon during the summer months. A few were observed at Avery Island, but they were not recorded from other areas the past season. They are too numerous on Chenier au Tigre in the winter, for they have the unfortunate habit of drilling into the houses—a procedure which makes them rather unpopular with the people. Specimens collected all proved to be this form. Mr. Hopkins collected a hybrid near Covington, January 10, 1931, which had several red feathers in tail and wing.

FLORIDA NIGHTHAWK. *Chordeiles virginianus chapmani.* Early in fall there is an incoming flight from the north, birds which are probably *virginianus*, the northern breeding form. The only specimens we have examined, however, have been local breeding birds, and these were identified by Mr. Peters as *chapmani*. They vary greatly in color, and average much lighter in coloration than *virginianus*. Nighthawks are very common along the coast and on offshore islands during the summer. They usually have two eggs which are laid upon the sand or ground; the nesting sites vary from the open beaches to places upon the ground, under palmettos and live oaks. Several nests were found the latter part of May, and half-grown young were seen on Brush Island the second week in June. Birds collected in the western part of the state appear identical with those taken along the eastern border.

CHIMNEY SWIFT. *Chaetura pelagica.* This is a common species in summer in southern Louisiana, and it nests throughout the region. A nest with three eggs was located in the chimney of our cottage on Avery Island. During the early part of the season swifts are not so apparent as in the latter part—the last of June and July—when the young are on the wing.

RUBY-THROATED HUMMINGBIRD. *Archilochus colubris.* A fairly common form in migration, and a few remain and probably breed in

the region under consideration. We observed them at Avery Island early in the past season. They are often rather abundant about the gardens of New Orleans.

Scissor-tailed Flycatcher. *Muscivora forficata.* We have never been fortunate enough to observe this species in life, but the men on the Chenier told us that "forked-tailed" flycatchers had been seen the week previous. Mr. Hopkins has taken three on Grand Isle, one of them on April 2, 1927, and he secured another on Bayou Lafourche, April 1, 1930.

Kingbird. *Tyrannus tyrannus.* This bird is found commonly throughout the region during the summer; its nests are found along canal and bayou banks where the vegetation overhangs the water. One could not take a trip along the inland waterways in June without flushing a few from their nests. One pair, which we recorded in the movies, had a beautiful nest made from Spanish moss; it was placed in a button bush in the middle of the heronry pond on Avery Island. Squawking young herons were near neighbors, but the Kingbirds did not seem to mind. They were so tame, they made ideal subjects for the photographer.

Crested Flycatcher. *Myiarchus crinitus.* This is a common form in the wooded sections, and their strident voices are characteristic of the southern region. They were seen daily at Avery Island and Chenier au Tigre during May, 1930. This species arrives at the latter place with other migrants the last week in March, are numerous for a few days, and then the majority of them move northward.

Derby Flycatcher. *Pitangus sulphuratus derbianus.* Early one morning we were walking along the beach at Chenier au Tigre, watching the Wilson's Plover running ahead when we saw a large flycatcher rise from a log of drift, flutter upward as though catching an insect, and then drop to perch. We placed the glasses upon it and saw immediately that it was a bird with which we were unfamiliar. It had a black patch across the head, and bright yellow underparts. Wright collected the specimen, which proved to be a fine-plumaged Derby Flycatcher, the first record for this species from Louisiana, we believe. The normal range of the species is along the Rio Grande in Texas, and southward.

Phoebe. *Sayornis phoebe.* This is a common winter bird. They begin to arrive in October and remain until April, and a visitor to the wooded areas between these months will note them daily. They were particularly common on Avery Island and Chenier au Tigre in December, 1925.

Wood Pewee. *Myiochanes virens.* This form occurs chiefly during migration. In November it is fairly numerous, and one of the delights of still hunting for deer along the wooded regions, is to watch the small birds working through the tree tops. Small warblers are ever on the move, but the pewee often sits motionless on twigs over the water, and then comes suddenly to life long enough to flutter into space, seize an insect, and drop back to perch. We have one specimen, a male, collected at Avery Island.

Blue Jay. *Cyanocitta cristata cristata.* This is a common, but not an abundant, form in any one locality. The birds assemble in the pecan groves, and at times, harvest more than their share of the crop, so they are not well liked by the natives. They appear more abundant in the southern part of their range during the winter than in the summer; they are common on Chenier au Tigre, for instance, during the cold months, but they are rarely seen during the breeding season. On a visit to the Chenier in May, 1930, we failed to see a jay, and only a few were observed daily on Avery Island, while they were abundant in March, 1931.

Crow. *Corvus brachyrhynchos brachyrhynchos.* This species is resident, but is more common inland than upon the coast; they occur along the higher ridges, such as Chenier au Tigre, at all seasons, and at times come into the fields in numbers. They are very common at Avery Island throughout the year, and they are even found on the delta of the Mississippi. Several were recorded October 22, 1928, at the mouth of Main Pass.

Fish Crow. *Corvus ossifragus.* These small crows are common on Avery Island. Mr. McIlhenny showed us a nest containing three eggs, on May 12, 1930. They are found along the entire coast, but we never observed them in great numbers. On Chenier au Tigre, for instance, not more than a dozen birds were seen in a week's time, December, 1925, and only six at once, as they gathered in a tree to torment a Barn Owl. We saw several about the heronry on Bird Island in Cameron Parish; they may have been nesting, or merely waiting to steal eggs from the nesting birds.

Bobolink. *Dolichonyx oryzivorus.* This is said to be an abundant bird at times, during migration, but we have never seen it in numbers. It arrives early in the fall, during September and October, and many gather in the rice fields. A few were seen at Avery Island the second week in May—the only records we have for the season.

Cowbird. *Molothrus ater ater.* These birds are residents in the southern section, and distributed generally in favorable localities. A

flock of fifteen or more hung about our headquarters on the Chenier au Tigre, and we saw a good many on Avery Island and in Cameron Parish. A specimen collected proved typical *ater*. A close watch was kept for *obscurus*, which, according to Kopman, is a fairly common bird north and west of New Orleans. We failed to record it.

Red-winged Blackbird. *Agelaius phoeniceus phoeniceus.*

Southern Red-winged Blackbird. *Agelaius phoeniceus littoralis.* Blackbirds are exceedingly common throughout the lowlands of the Gulf Coast. The breeding form, which is abundant, is given as *littoralis*, while specimens collected in the winter of 1925 proved to be *phoeniceus*. Red-wings are ever present, and often are so numerous as to present a serious problem to the rice growers.

Southern Meadowlark. *Sturnella magna argutula.* This is a very common bird, and we found it in favorable localities over the entire area. They were particularly plentiful in the vicinity of Avery Island where a nest was found on May 17. They are also plentiful during the winter, and were in full song in December, 1925.

Orchard Oriole. *Icterus spurius.* This is a common breeding bird on the southern lowlands. The first arrivals make their appearance the middle of March, and nest building commences a month or more later. The seasons vary, however; on the Chenier we found nests with small young, and others which were not completed, the last week in May. Wherever little peninsulas of willow and other small trees project into the marsh, or where the banks of meandering tidal streams are overhung with tall growths, there one will find the beautiful, strongly-made nests of these orioles. The males were in full song during our trip, and we were surprised to find birds in second year plumage breeding.

Florida Grackle. *Quiscalus quiscula aglaeus.* This is a rather common bird, but is more evident after the breeding season, when they have congregated into flocks. They are found about habitations, and a few were collected at Avery Island. In addition, they were observed at Chenier au Tigre the latter part of May, and in several localities along the Mississippi below New Orleans, on June 7. On this date we saw them flying singly over the river and oftentimes they would hover over a given area, and then pick something from the water, much as Black Terns do.

Boat-tailed Grackle. *Megaquiscalus major major.* This is a very abundant bird and it nests all through the marsh country. The nesting period begins the latter part of March and extends through

June, and, in one colony among the tules on the Chenier, on May 27, we found nests being built and others which contained half grown young. After the breeding season, the "chocks" form in large flocks and oftentimes raid the rice fields along with the red-wings, much to the displeasure of the farmers.

GOLDFINCH. *Astragalinus tristis tristis.* This is a common winter visitor in the vicinity of New Orleans and northward, but we have seen few in the southern area; they may be seen daily in winter on Avery Island, along the edges of the fields.

SAVANNA SPARROW. *Passerculus sandwichensis savanna.* This is a common form in winter, being found on high ground, in the fields, and even in the marsh. They begin to arrive in October, and remain until late spring (April).

Passerculus sandwichensis subsp. There is a dark form found along the coastal marshes. Bailey secured specimens in December, 1925, and several additional ones were taken by Messrs. McIlhenny and Wright in May, 1930, at Avery Island. All observed at this late date were dark colored, but specimens collected were not nesting. Those collected at Chenier au Tigre in 1925 were submitted to Mr. Outram Bangs for identification, and his reply, as published in the *Auk*, Vol. XLV, was as follows:

"Three very dark birds from Louisiana, with very blackish upper parts, deep chestnut edges to wing feathers, much black on the head and intense black stripes below. These are so different from eastern specimens of *savanna* that I feel pretty sure they represent and undescribed form. Where does this form breed is the question. I wonder if it can be resident and breeding in the marshes of Louisiana. They are too large to be stray migrants of the California *bryanti*, and are also still darker, or rather, blacker than that form. There is a rather dark Savannah Sparrow that breeds in Wisconsin and Michigan and migrates to Arkansas, Texas (sometimes), and Tarpon Springs, Florida, (though most of the specimens from there are the eastern bird). This form, which is rather ill defined, is, however, much less blackish than your birds. We have four skins from Louisiana, one taken at Rigolets as late as April 4. These are much nearer to yours than they are to eastern specimens of *savanna*, and are the darkest of our several hundred Savannah Sparrows."

A close watch was kept for these dark plumaged birds, in May, 1930, and March, 1931, on Chenier au Tigre, where the above-mentioned specimens were taken in December, 1925, but we failed to see one.

NELSON'S SPARROW. *Passerherbulus nelsoni nelsoni.* These common winter visitors are found in the salt marshes bordering the gulf. We have collected specimens in December on Chenier au Tigre, and found them very plentiful in "needle grass" at the mouth of Main Pass the latter part of October. Hunters in blinds have many opportunities to observe these little fellows, for they are rather secretive and are easily alarmed. They have a quick, erratic flight, and when flushed, will dart away for fifteen or twenty feet, and then dive out of sight in the thick vegetation. We have no summer records.

LOUISIANA SEASIDE SPARROW. *Ammodramus martimus fisheri.* This is a common nesting species of the salt marshes, and was observed all along the coast. The males were in full song, and often we would see half a dozen at a time, scattered over a considerable area, perched upon the marsh grass. Specimens collected at the mouth of Main Pass in October, 1928, were molting, and many had new tail feathers half grown.

HOWELL'S SEASIDE SPARROW. *Ammodramus maritimus howelli.* Three specimens taken on offshore islands off the east coast of Louisiana were grayer than birds taken to the westward, and slightly larger. They were sent to Mr. Peters who identified them as *howelli.* The habitats of the two birds seem to be different, for the latter were found on low islands where the coarse vegetation was scant and low, and the islands were flooded at high tide. The Louisiana Seaside Sparrows were always found in heavy grass where oftentimes it was almost impossible to find a specimen after it was collected.

Two nests of this race were found, both about one foot above the water, in "sea cane". One nest contained four fresh eggs, and the other, four newly hatched young. A photographic blind was erected at the latter place and motion films were made of the old one as she returned to brood the nestlings. This form was observed on Breton, Brush, and the Chandeleur Islands, and along the low salt marshes inshore from these islands.

SWAMP SPARROW. *Melospiza georgiana.* This is a very common winter bird of the southern area. It arrives the latter part of October, and thereafter is a conspicuous form along the edges of the fields bordering the oak woods. They were very numerous at Avery Island and Chenier au Tigre during December, 1925. They leave for the north the latter part of April.

TOWHEE. *Pipilo erythrophthalmus erythrophthalmus.* This is not a common form in the southern section; in fact, the only place we have recorded it is from Avery Island. One was collected May 18,

and a few others observed. They occur there regularly, according to Mr. McIlhenny, often coming around his home where they find abundant food in the nearby garden.

Louisiana Cardinal. *Cardinalis cardinalis magnirostris.* This form, described by Mr. Bangs, is very common, and, owing to its beautiful plumage, is the most conspicuous of the song birds. Specimens collected proved to have heavier beaks than northern birds, and seemed to bear out Mr. Bangs in his opinion. We have two skins from Arkansas, however, which are like the Louisiana birds. We found several nests in the low mesquite, and one was located within fifty feet of the gulf. The nest was made of grass and Spanish moss, and was decorated with a big piece of snake skin. We made motion films of the female on her nest; she proved shy and was frightened at the whirr of the camera, but we finally secured a good strip of film. The male flew into the near vicinity a few times, but in the two days we had the nest under observation, it never offered to aid in the work of incubation. Another nest observed contained young, and the adults were feeding them on cicadas.

Rose-breasted Grosbeak. *Hedymeles ludovicianus.* Not an abundant bird, and only seen in late spring and early fall. We did not observe a single individual the season of 1930 or 1931. We have one specimen, a male, taken by E. S. Hopkins, May 3, 1925, at Grand Isle.

Painted Bunting. *Passerina ciris.* These beautiful fellows are fairly common during the summer. A few were seen on Avery Island in May, but we failed to find a nest. They prefer heavy thickets bordering fields, and in spite of the fact that they are protected, they appear very timid. They are most conspicuous in the middle of March, when they make their first appearance along with other migrants.

Scarlet Tanager. *Piranga erythromelas.* These tanagers occur in the southern portion only in migration, and unless one is afield for the few brief days, he is likely to miss the species altogether. When they first appear along the coast, on Chenier au Tigre or Grand Isle, the middle to latter part of April, they rest from their over water flight for a few days, and then move northward. One spring, the exact date which we failed to keep, Messrs. Arthur and Bailey were offshore on a Department of Conservation boat, when a tired tanager came alongside, hesitated, and then dropped upon the deck. It was merely exhausted. They were but a few miles offshore, and the bird flew away shortly after.

Summer Tanager. *Piranga rubra rubra.* Not common in the lowlands except along the ridges during migration. They arrive in early April and depart in October. Mr. E. S. Hopkins presented us with a male collected on Grand Isle, April 29, 1925. Bailey has recorded them from Grand Isle, Chenier au Tigre, and Avery Island.

Purple Martin. *Progne subis subis.* These are common birds during the summer. They arrive earlier than the majority of migrants, the last of February or first week in March, and leave again in September. On Avery Island they were nesting in bird houses made from joints of bamboo, the latter part of May.

Barn Swallow. *Hirundo erythrogaster.* Occurs commonly as a migrant. Oftentimes when the migration is at its height, they will be seen in numbers, but they usually disappear, for the most part, by the middle of May. We were fortunate the past season, in seeing them at Avery Island on May 9, Chenier au Tigre, May 24, and in Cameron Parish (Ged), May 31. They arrive from the north rather early in August and September. Bailey saw a few at the mouth of Main Pass, October 22, 1928. The majority leave for the south by early November.

Tree Swallow. *Iridoprocne bicolor.* This migrant is very common, and a few seem to remain throughout the summer. They were observed at Avery Island only, however, during the past season. Some years they remain all winter, and Bailey found them over the marshes by thousands in December, 1925, at Chenier au Tigre.

Rough-winged Swallow. *Stelgidopteryx serripennis.* A few of this species were observed at Avery Island, but no specimens were collected. The identifications were made by Mr. McIlhenny who stated that the Bank Swallows were not found on the island so late in May.

Cedar Waxwing. *Bombycilla cedrorum.* These fine little northern birds make their appearance on the Gulf Coast in late winter. The earliest we have recorded were those seen by Bailey on Chenier au Tigre the first week in December, 1925. They remain late in the spring, some not making their departure until the first week in June. This past season, 1930, we saw them in flocks at Avery Island on May 12—several bands of twenty or more individuals, and on Chenier au Tigre on May 22. We saw approximately fifty birds at the latter place.

Loggerhead Shrike. *Lanius ludovicianus ludovicianus.* A common breeding bird of the area, which is to be seen daily during the summer months. Its status as a wintering bird has not been worked out, however; at least, we have no records for the cold months.

MIGRANT SHRIKE. *Lanius ludovicianus migrans.* Shrikes are common in winter, and it is possible that the majority are the northern breeding birds. Specimens collected at Chenier au Tigre in December proved to be *migrans.*

RED-EYED VIREO. *Vireosylva olivacea.* This is a common bird in summer. It arrives at Chenier au Tigre early in March, and is a conspicuous bird upon the ridge for a few days; then the wave passes on, leaving comparatively few. We saw many, however, the latter part of May, often in willows and other low growths along the meandering streams, far back in the marsh.

WARBLING VIREO. *Vireosylva gilva gilva.* Common during migration in March and April on the Chenier, but not observed at other seasons; the earliest record we have for the ridge is March 4, 1918. There were only a few birds at this date.

BLUE-HEADED VIREO. *Lanivireo solitarius solitarius.* This is not an uncommon bird in winter, especially at Avery Island. We have two records for the Chenier, a specimen collected in December, 1918, and another March 10, 1931.

WHITE-EYED VIREO. *Vireo griseus griseus.* A fairly common bird during the summer; they are found in wooded areas, especially in the vicinity of water. Many were observed at Avery Island in November, 1925—which we believe to be a rather late date.

BLACK-AND-WHITE WARBLER. *Mniotilta varia.* Rather common along the ridges in migration. They arrive early and a few may remain through the summer. We have a pair taken at Grand Isle by E. S. Hopkins, March 31, 1928.

PROTHONOTARY WARBLER. *Protonotaria citrea.* Common during migration, and a few may be observed daily along wooded bayous. It is one of the most beautiful of the southern birds. They arrive early. We have one specimen taken at Grand Isle, April 11, 1928, by E. S. Hopkins. Bailey has collected several near New Orleans, during the months of April and May.

SWAINSON'S WARBLER. *Lymnothlypis swainsoni.* We have no record of this form from the area under consideration, although it undoubtedly occurs in favorable places. Bailey saw a few birds at Mandeville, across the lake from New Orleans, in July, 1916, and there were several specimens in the Louisiana State Museum collected from the same region.

NORTHERN PARULA WARBLER. *Compsothlypis americana pusilla.* This is a fairly common breeding bird of the region. It seems to prefer moist areas at the edge of the swamps. Strangely enough, we did

not record a single specimen in 1930, but in other years many have been seen on the Chenier, at Avery Island, and in the vicinity of New Orleans. They are most evident when they first arrive from the south, the latter part of March. At this time the deciduous trees are still without their full foliage, and small birds may more readily be observed.

YELLOW WARBLER. *Dendroica aestiva aestiva.* This is a common bird during spring and late summer. One was observed on the Chenier, May 21, a rather late date. They become common again during August. One was seen at the mouth of the Mississippi River, at Chateau Canard, October 22, 1928, which seems to be a late fall record.

MYRTLE WARBLER. *Dendroica coronata.* This is one of the really common winter birds. It is found throughout the wooded areas of the south, and along the wooded edges of fields. It arrives the latter part of October and remains until April, when it joins the other migrants on their northward journey.

MAGNOLIA WARBLER. *Dendroica magnolia.* This is a common form during the fall migration, especially on the higher ridges. Specimens were taken near New Orleans by Bailey, May, 1918.

CERULEAN WARBLER. *Dendroica caerulea.* Not abundant. It arrives rather early in the spring and leaves early in the fall. Bailey collected specimens near New Orleans, and we have a male taken by E. S. Hopkins, April 15, 1928.

CHESTNUT-SIDED WARBLER. *Dendroica pensylvanica.* Not common; aside from a few taken near New Orleans in May, 1918, the only definite record we have is a specimen taken by E. S. Hopkins at Grand Isle, April 13, 1925.

BLACKBURNIAN WARBLER. *Dendroica fusca.* We have no personal records, but Mr. Hopkins presented us with a male taken April 15, 1925, at Grand Isle.

SYCAMORE WARBLER. *Dendroica dominica albilora.* The only record we have of this species is a fine female taken at Chenier au Tigre, March 10, 1931. Mr. Hopkins states that he has observed them regularly during migration at Grand Chenier, but that they are not numerous.

PALM WARBLER. *Dendroica palmarum.* A not uncommon wintering bird; many were seen on Avery Island in November and early December, 1925, and a few on the Chenier the first week of December.

MARYLAND YELLOW-THROAT. *Geothlypis trichas trichas.*

FLORIDA YELLOW-THROAT. *Geothlypis trichas ignota.* Yellow throats are common in the marsh country, and during May and June

they may be heard singing on all sides. The breeding bird is *ignota*, while it is probable that the majority of wintering birds are *trichas*. Both forms were collected at the mouth of the Mississippi River, near Pilot Town, October 22, 1928.

HOODED WARBLER. *Wilsonia citrina*. This is a common bird throughout the wooded lowlands during the summer. They arrive rather early in the spring and remain until well into October. Bailey has taken specimens in New Orleans in May.

PIPIT. *Anthus spinolitta rubescens*. These northern visitors are generally distributed during the winter months. They were numerous in the Chenier au Tigre in March, 1931, and specimens were collected.

SAGE THRASHER. *Oreoscoptes montanus*. The only records we have for this form were given us by Mr. E. S. Hopkins who collected a male and saw five others in Cameron Parish, January 1, 1928. Mr. Hopkins' records are the first from Louisiana, we believe.

MOCKINGBIRD. *Mimus polyglottos polyglottos*. This is a common bird the year around throughout the entire region. They have interesting habits during the mating season. Under the date of March 3, 1918, Bailey writes: "We had a good trip down Bayou Vermilion, and we saw several mockers going through courtship antics. Perched on the highest limb of a tree, exactly as do the Cardinals, with throats swelled and beaks pointed upward, they could literally be seen singing. After an outburst of song, a bird would spring a few feet into the air with wings and tail spread to their greatest extent, and then, drifting downward, would alight gracefully and start singing again. Coming down the bayou, we saw at least six of these fine songsters in the courtship role, presumably males, so I have no doubt it is a characteristic performance." Most of the young had left their nests on Chenier au Tigre by the last week in May, 1930.

CATBIRD. *Dumetella carolinensis*. Occurs in migration, but not commonly. A few winter during mild seasons, but winter records are rather rare. Bailey recorded two on Chenier au Tigre the first week in December, 1925.

BROWN THRASHER. *Toxostoma rufum*. We have no summer records from the southern area, but the thrasher occurs commonly throughout the area in migration. They winter in small numbers, and on Chenier au Tigre, December, 1925, they were fairly numerous. A few could be seen in an hour's walk. The birds were shy and remained in heavy cover.

CAROLINA WREN. *Thryothorus ludovicianus ludovicianus*. These are common residents, being found on all the ridges and wooded areas.

They can be heard singing early and late at all seasons of the year. Even in December, when "northers" make humans shrivel to a small size, the wrens were out singing. Nests were found upon the ground, at the base of trees, and upon rafters of sheds and barns. The birds are extremely tame, and are found in numbers about dwelling places.

House Wren. *Troglodytes aëdon aëdon.* These are common winter visitors, but they do not stay around habitations as they do during the breeding season. They were plentiful at Avery Island in November, 1925, and a few were seen on Chenier au Tigre the first week in December.

Short-billed Marsh Wren. *Cistothorus stellaris.* Owing to the secretive habits of these little fellows, they are hard to observe. They occur more or less commonly on the ridges and at the edges of the marsh, during the winter. We have specimens collected near Pilot Town, the last week in October, 1928; several were observed at this time, and Bailey has taken others, one on Bayou Ferman, Vermilion Parish, November 25, 1916, and another on Chenier au Tigre in December, 1925.

Prairie Marsh Wren. *Telmatodytes palustris iliacus.* This form probably occurs more or less commonly, but owing to the habits of the long-bills, there are few in collections. Bailey took a male of this form, October 24, 1928, near Pilot Town, at Chateau Canard. This is the first record for the state, as far as we know.

Louisiana Long-billed Marsh Wren. *Telmatodytes palustris thryophilus.* This well-marked, dark-colored bird is the common breeding bird of the region. They are abundant in certain areas along the coast, and on one afternoon walk, we counted more than thirty. They prefer the cane, tules, and cattails in the open marsh, and we saw many perched on the highest point, where they sang their "spring song". Several old nests were found, and one new one which contained four eggs. We could see no difference in the nesting habits of *thryophilus* from that of other subspecies. We found this form along the gulf in Cameron Parish, on Chenier au Tigre, Marsh Island, and on Breton Island. No specimens were secured from the islands off the east coast, however, so we are not sure the birds observed there were of this race.

Tufted Titmouse. *Baeolophus bicolor.* Fairly common in wooded regions, especially in the fall. Many are to be seen on Avery Island after the deciduous trees have dropped their leaves.

Golden-crowned Kinglet. *Regulus satrapa satrapa.* Very common winter birds. They are found on the ridges close to the gulf.

RUBY-CROWNED KINGLET. *Regulus calendula calendula.* These little fellows are also abundant, and may be seen working through the tree tops on any winter day. They are, however, not so common as the preceding form. They arrive from the north the latter part of October, and return again in April.

BLUE-GRAY GNATCATCHER. *Polioptila caerulea caerulea.* Fairly common during the summer, and a few winter along the gulf. Only a scattering few will be seen in a day's walk through the open woods, however. They were fairly common on Chenier au Tigre in December, 1925.

WOOD THRUSH. *Hylocichla mustelina.* These are fairly common in the fall, and a few may be seen on Avery Island and nearby places during the entire summer. We observed several on Avery Island the second week in May.

HERMIT THRUSH. *Hylocichla guttata pallasii.* While this species is a common one of the wooded area, we have recorded it rarely in the southern part of the state. Several were seen March 9-12, 1931, at Chenier au Tigre, and one specimen was taken.

ROBIN. *Planesticus migratorius* subsp. Robins are very common in the fall, winter, and early spring in the southern area, but we have no early summer or summer records. It is probable that both *migratorius* and *achrusterus* are represented, but we have never taken specimens for comparison.

BLUEBIRD. *Sialia sialis sialis.* The only records we have from the lowlands are in winter. Bluebirds are very common in the Chenier au Tigre and Avery Island at this season, and their sweet, plaintive notes are characteristic sounds of the southern woods.

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EDITORIAL

Some Interesting Results have now been obtained by marking mammals. The Cleveland program of the Ecological Society contained a paper on "Territory in Mammal Life", by W. L. Strunk, of the University of Michigan. In the *Journal of Mammalogy* (August, 1931) we find a paper on the "Travels of Peromyscus", by O. J. Murie and Adolph Murie. These mice were trapped and marked by means of ear punches, then liberated at varying distances from the home station. Subsequent recaptures gave information as to range of travel. Mice liberated far from home found their way back. One mouse found its way home over a distance of one mile. The authors are inclined to explain this capacity for orientation by the "sense of direction" idea.

Newspapers in August carried a press report stating that Prof. A. Brazier Howell, of Johns Hopkins University, claims that the "grasshopper" irruption in the middle west "is a result of the government policy of extermination of rodents." The August number of the *Journal of Mammalogy* contains the full report of the Committee on Predatory Mammal Control of the American Society of Mammalogists. While couched in polite terms this report is an indictment of the Biological Survey. The report lays the blame for the crisis now confronting our wild life directly on the executive officers of the Survey. It is saddening to watch the deterioration of a scientific bureau of which in the past we have been duly proud. We have been watching in recent years for an output of the Survey which would correspond in some measure with the work of Merriam, Cooke, Beal, Judd, McAtee, and others.

In connection with the Survey's poisoning campaign we may call attention to an article by Dr. Jean M. Linsdale entitled "Facts concerning the use of thallium in California to poison rodents—its destructiveness to game birds, song birds, and other valuable wild life", which appeared in the *Condor* for May-June, 1931. The facts therein presented are astounding. The number of kinds of

animals killed in California is listed at sixty. Of these thirty-four are birds, native and domestic, including 3314 Mourning Doves, 713 Valley Quail, 67 Meadowlarks, etc. And, of course, these figures are for a limited area, and must be regarded as incomplete.

New Orleans is a city of somewhat less than half a million population, located on the Mississippi River 110 miles from the mouth. There are many features about this city to interest the visitor. First of all, perhaps, its historical background claims our attention; many old buildings and customs still remain to give one glimpses of American conditions as they were a hundred and fifty years ago.

New Orleans was founded in 1718 by a French-Canadian named Bienville. Therefore, it is now more than 200 years old. While destructive fires, in 1788 and 1794, destroyed many of the oldest buildings, there are still many which are more than 100 years old, and some considerably older. Most of these picturesque structures are located in the "old quarter", called the *Vieux Carre*. From the time of its beginning until 1764 New Orleans was under French dominion. From that year until 1803 was the Spanish era. In the latter year the city came under American control, although the French again held the keys of the city for twenty days between the Spanish and American régimes.

Many relics of these early years still exist to make New Orleans one of the most interesting and picturesque of American cities. A few miles below the city is the Chalmette Battlefield, where, in 1814, General Jackson defeated the British. A beautiful monument has been erected to commemorate the event. We started out to make a list of the many monuments and historic buildings which might be classified as among the city's sights; but the task was immediately found to be too great.

The visiting engineer will find much to interest him. Part of the city is about one foot below the water level of the Gulf of Mexico. A much greater part is below the high water level of the Mississippi River. For many years this condition made it impossible to have cellars under the houses, or to have wells of pure water; wooden cisterns provided a fresh water supply. The dead could not be buried under the ground. An adequate sewage system was impossible. The Mississippi River overflowed its banks, causing destruction and disease. Now the city has protected itself with a system of levees, in comparison with which "the stone walls of the most famous mediaeval cities are toys". The total length of the "Great Wall of New Orleans" is said to be more than 100 miles, erected at a cost of $11,000,000. The city has also an efficient drainage system operated by enormous pumps, which have a discharge capacity of seven billions of gallons daily. Opening the mouth of the Mississippi River for navigation, construction of passable land highways, including a five-mile concrete bridge across Lake Ponchartrain, into the city are other engineering problems which have been

solved. These constructions have cost a great deal of money. Besides the cost of the levees mentioned above, $43,000,000 were spent for the drainage, sewerage, and water systems; $160,000,000 for harbor facilities; and $11,000,000 for making the wharves and buildings rat-proof to protect against the bubonic plague.

Within easy distance from New Orleans are the largest and most densely populated bird sanctuaries in the world. To describe these would make a long article. The article by Messrs. Bailey and Wright concluded in this issue is intended to give some idea of the bird life of this region.

Those who wish to make themselves familiar with the city before visiting it may secure descriptive pamphlets by writing to the New Orleans Association of Commerce. A splendidly illustrated article, with an excellent map of the state, will be found in the *National Geographic Magazine* for April, 1930.

All of these things make New Orleans an interesting city. The American Association for the Advancement of Science met in New Orleans once before, a quarter of a century ago, in 1905-1906; it is likely to be as long before a third meeting is held there. This is our opportunity. Times are hard, but life is short.

Beyond this, plans are being investigated by which our members may take a trip to Havana, Cuba, at much reduced cost immediately following the W. O. C. meeting. Details of this trip may be expected in the Secretary's letter of announcements for the meeting.

GENERAL NOTES

Conducted by M. H. Swenk

Another Early Hour's Bird List.—The following was suggested by Mr. Eifrig's list in the WILSON BULLETIN for March, 1931, p. 58. I was still in bed, the hour was 6:00 to 6:30 o'clock on the morning of March 21, 1931. The temperature was about 60°. The birds heard were the Red-bellied Woodpecker, Flicker, Blue Jay, Crow, Meadowlark, Grackle, White-throated Sparrow, Field Sparrow, Cardinal, Loggerhead Shrike, Mockingbird, and Bluebird.—HELEN M. EDWARDS, *Fairhope, Ala.*

Migration Notes from Sioux City, Iowa.—The migrating shore birds have been quite plentiful this spring. Some of the less common species listed were the Hudsonian Godwit, Long-billed Dowitcher, and Stilt Sandpiper. Brewer's Blackbird and the Arctic Towhee were found both in Woodbury County, Iowa, and in Union County, South Dakota. A specimen of the latter bird was taken for verification. The Turkey Vulture and the Yellow-breasted Chat were found in the adjacent Dakota County, Nebraska. The Yellow-throated Vireo was seen in Union County, South Dakota, and has apparently been overlooked, as it does not appear in the Birds of South Dakota, by Over and Thoms. The Black-throated Green Warbler, Red-bellied Woodpecker, and Osprey were also seen in Union County.—WILLIAM YOUNGWORTH, *Sioux City, Iowa.*

Pectoral Sandpiper at Winslow, Arkansas.—On May 12, 1931, it was my good fortune to receive a specimen of the Pectoral Sandpiper (*Pisobia melanotos*) that had been shot near a small pond here, where it was feeding in company with five other birds of the same species. The bird was a female and the skin is now in my collection.

This is the first record for the Pectoral Sandpiper from this section of the state. Pindar found the bird in Poinsett County in 1888-89, and reported it as rare, while Howell, while making his study of the birds of Arkansas for the Biological Survey, recorded it on May 15, 1910, at Arkansas City, Arkansas County. These are the only two locations from which the bird has been reported. Both of these records are from the lowlands portion of the state, on the east side near the Mississippi River. Winslow is in the extreme northwestern part of the state, in the Ozark Mountains. The pond where the Winslow specimen was secured is in all probability the highest natural pond in the Mississippi Valley, being 2250 feet above sea level, and far away from the regular migration route of this species.—J. D. BLACK, *Winslow, Ark.*

The Mating of the Western Mockingbird.—On June 21, 1929, at San Diego, California, I witnessed a pair of Western Mockingbirds (*Mimus polyglottos leucopterus*) in copulation. I had several times noticed a female carrying nesting material into a certain clump of shrubbery, and on the morning of the day stated above she flew from her nesting site and alighted on the ground among the shrubbery under the window from which I watched. She appeared to be feeding on something which she was finding on the ground. The male was singing from the top of a tall flagpole nearby. Suddenly he dropped from his perch. In full song, he shot down into the shrubbery about fifteen feet beyond the female. As he sped past her, the female crouched a little and began to quiver her wings. She continued in this as the male, singing excitedly and with tail and wings half

spread, advanced toward her with dancing steps. As he neared her his excitement grew but his approach was stately and unhurried. As he came near he seemed to be floating along just over the ground and he rose gradually and settled upon her back. All this time he had been pouring forth impassioned melody. The act lasted several seconds and was accompanied by much fluttering of wings.

This mating was surprisingly different from what I have witnessed in other *Passeriformes*. With House Finches (*Carpodacus mexicanus frontalis*), Western Lark Sparrows (*Chondestes grammacus strigatus*) and English Sparrows (*Passer domesticus*), observed on numerous occasions at San Diego, California, copulation occurred at intervals of a very few seconds for many successive times.—Frank F. Gander, *Natural History Museum, San Diego, Cal.*

Skunks as Prey for Owls.—As long ago as 1892, when Dr. A. K. Fisher wrote his classic "Hawks and Owls of the United States in Their Relation to Agriculture", it was recognized that in regions where the skunk is common it forms a not uncommon article of the Great Horned Owl's food. However, skunks are not listed in that work as among the stomach contents of any other kind of owl. It was therefore of interest to the writer to find that an American Barn Owl (*Tyto alba pratincola*), which had been killed on the highway by a motorist and was brought to the San Diego Natural History Museum on April 29, 1931, was strongly pervaded with the odor of skunk. Furthermore, the scent could be positively identified as that of the genus *Spilogale* (Spotted Skunk), which, in the writer's experience, can be distinguished without difficulty from that of other genera of skunks when it is fresh.

When the wings of the dead Barn Owl were spread, a round yellow spot about five inches in diameter was found on the secondary feathers of the left wing, and it was from this spot that the strongest skunk odor emanated. Two similar incidents were recalled to the mind of the writer, both involving Western Horned Owls (*Bubo virginianus pallescens*) which had been in close contact with skunks. One of these birds was collected in December, 1915, at Fort Lowell, near Tucson, Arizona, and had a discolored area on its plumage where the scent had struck, which was, however, of a light pinkish color, not yellow. As there are three genera of skunks (*Conepatus*, *Mephitis*, and *Spilogale*) to be found in or near the locality where this owl was secured, we may perhaps assume that one of the two larger forms, not *Spilogale*, had been the victim of the owl. Further experience may determine which of the two had been attacked.

The other Horned Owl was taken in January, 1917, at Potholes, Imperial County, California, and was marked with a yellow stain like that upon the recent Barn Owl. We may now assume that this Horned Owl had been preying upon a *Spilogale*.

Frank F. Gander, a member of the San Diego Natural History Museum staff, informs me that several years ago a dead Short-eared Owl (*Asio flammeus flammeus*) was brought to him, very odorous with skunk scent. Although the events which led up to this condition are not known, we may perhaps add the Short-eared Owl to the list of owls which have killed, or attempted to kill, skunks.—Laurence M. Huey, *San Diego, Cal.*

Incompatibility of House and California Wrens.—I have been wondering if any other lover of birds has noticed anything odd in the attitudes of House

Wrens (*Troglodytes aedon aedon*) and Carolina Wrens (*Thryothorous ludovicianus*) toward each other. Several years ago, when I was quite a small boy, we had here at my home what I now know to have been Carolina Wrens. As I grew older and became interested in birds, I realized that Carolina Wrens were the first birds ever to have chosen a house of my construction for a nesting site. But they were then gone from my premises, though they were still to be found in my neighborhood, and House Wrens were using my houses. They reigned supreme for several seasons; then the Carolina Wrens returned. The House Wrens left, and have not been here to nest since, but the Carolina Wrens nest with me each year. A pair of House Wrens come each spring but they do not stay. Though the Carolina Wrens are with me at odd times throughout the winter, they spend the greater part of this period in the heavier woods; one spring when they were later than usual in beginning to nest, a pair of House Wrens came and began a nest in a rick of wood, but the Carolina Wrens appeared before the nest was complete, and the House Wrens abandoned the premises.

House Wrens are quite common in this vicinity; almost all farm homes have one or more pairs each season, though most of them do not have the Carolina Wrens. My premises appeal more to the Carolina Wren than do most homes here, due to the fact that the forest comes almost to my door. However, I know that if it were not for the Carolina Wrens, I would have at least one pair of House Wrens nesting with me each spring. But I am not complaining. I like the Carolina Wren well enough. Nevertheless, I certainly wish that both species of wrens could get along together peaceably. I would like to have them both. But, whether true in other localities or not, I know that here, where many different birds throng each spring, the two species of wrens do not agree.—GRANT HENDERSON, *Greensburg, Ind.*

Bird Notes from Lake County, Ohio.—Twice in past years I have reported the Parasitic Jaeger (*Stercorarius parasiticus*) to the WILSON BULLETIN, but both were dead birds found on the beach of the lake. However, on August 17, 1930, I saw my first live specimen, and to make it more interesting it was in the black phase of plumage with the contrasting straw color on the neck. When first seen it was flying swiftly just above the water and close to the beach. A Spotted Sandpiper left the shore and I was immediately treated to some wonderful aerial gymnastics, as the Sandpiper mounted by twisting spirals high into the air, while the jaeger easily kept pace and at times rose above to strike at the victim with its bill. The sandpiper finally escaped and the jaeger came flying swiftly back past me, again low over the water, affording another fine view of its plumage and falcon-like appearance.

I was much surprised on October 21, 1930, to find a Red Phalarope (*Phalaropus fulicarius*) busily feeding in a quiet little bay of Grand River, fully three miles from the lake, where it has previously been reported on rare occasions. The bird was entirely unsuspicious and fed up to within six feet of me as I stood at the edge of the water. A full plumage description was taken on the spot and the bill proportions noted.

On the same day as the discovery of the Red Phalarope (October 21), I had the pleasure of a good study of the Harris's Sparrow (*Zonotrichia querula*), though I had seen the bird and suspected its identity on October 18. It was an immature bird, which as yet had acquired no noticeable black feathers on the

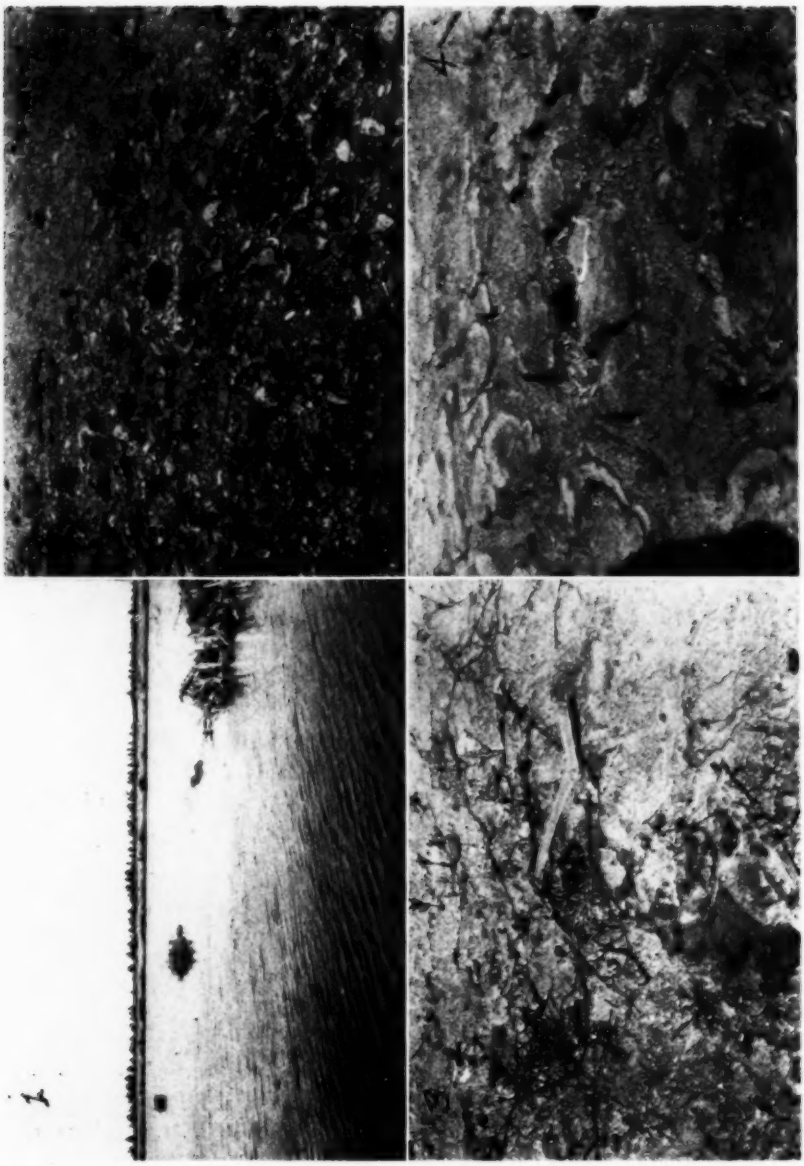

FIG. 45. Habitat and nests of the Black-necked Stilt in Florida. 1, Lagoon, with the "fill" in the distance. 2, Nest of the Black-necked Stilt with shell lining. 3, Another nest with twig and grass-stem lining. 4, Another nest placed on the marl fill and lined with a small amount of shell and grass-stem.

breast, but the black malar stripes were at once in evidence and served to distinguish it quickly from the white-throats and white-crowns with which it was associated. The broad buffy-brown flank stripes were also noted as well as the large size of the bird, its light bill, the buffy line over its eyes and the buffy sides of its head. It also would fly up and perch when startled from the ground instead of scurrying away like the white-throats.

While making a Christmas bird census on December 22, 1930, I was lucky enough to discover a Franklin's Gull (*Larus franklini*) standing all alone at the lake. It was an immature bird in its first winter plumage, and the white forehead contrasting with the dark nuchal collar, which it wears at this period, made it easily separable from any other species of small gull. As the bird has remained at the same place up to the present writing (last of January, 1931) and I have had several opportunities for observing it, the identification is unquestionable. The eye ring, broad black subterminal tail band, pure white breast and black-tipped wings with their narrow white lower edges, combined with the striking head markings, made it an unusual looking little gull for this section.—E. A. Doolittle, *Painesville, Ohio.*

Some Types of Nests of the Black-necked Stilt in Florida.—While the Black-necked Stilts (*Himantopus mexicanus*) have bred in many localities in Florida in the past, it was not until last year (1930) that a suitable artificial breeding place, and one to their liking, was made for them by the real estate development companies.

This was near the head of Biscayne Bay, and adjoining the inland waterway canal where a large area was filled by suction dredging, or pumping up from the bottom of the canal. Muck, sand, marl, and shell areas showed on top of the fill when it had finally settled, to which was attracted for a breeding ground, not only the stilts but Least Terns, Wilson's Plovers, and Florida Nighthawks. Brackish water rises and falls in the lake or lagoon, the depth depending on the tide (1 in fig. 45), and here the birds find an abundance of food at all times.

While looking for nests over this area, tracks of raccoon, civet cat, and bobcat were seen, and incomplete sets of eggs left one week were missing the next, so I presume mortality will be high because of these animals.

One type of nest shows the slight depression, or wallow, lined and surrounded with small shells and bits of shell, and placed in a heavy patch of shell (2 in fig. 45). Another shows the nest out in the open, and made of small black twigs and grass stems (3 in fig. 45). The third type, shows the nest placed down in the crack of the dried marl area, the lining being both shell and dried stems (4 in fig. 45).

On Merritt's Island, I have found them nesting out in the short, newly grown green marsh area that followed a fire, also around brackish water ponds and at the edge of the shore grass. They also breed in the "Glades", around open sawgrass ponds, where water has receded, and on the shores of ponds found on many of the keys in Florida Bay, and in back of the Cape Sable region lakes.—Harold H. Bailey, *Miami, Fla.*

A Cross Section of Shore-Bird Migration Near Toledo, Ohio.—Very few observers are in a position to study the movements of Limicolae as a class, for, generally speaking, the sand-bars and mud flats so attractive to shore birds are seldom found away from the larger rivers and lakes. For this reason, there is much to be learned concerning the numbers and movements of this order. It is with the hope of adding something to the general fund of knowledge that the following data are submitted.

These records were obtained during 1930 on thirty-five field trips made into the country around Bono (twelve miles east of Toledo) and at Little Cedar Point (ten miles east of Toledo). Bono is a small village about a mile inland from Lake Erie, located upon land which lies at or very near lake level, and which has been reclaimed through a series of dikes and drainage canals. In the spring of 1929, due to a combination of high lake levels and severe storms, dikes were washed out in several places, and hundreds of acres of farm land flooded. In 1930 much of the land was either under several inches of water or a vast expanse of mud, depending on the direction of the wind, which controls lake levels. These mud flats attracted flocks of shore birds and here observations were made.

For those birds preferring sand beaches, trips were made to Little Cedar Point, a sand-bar terminating the marshy peninsula which marks the dividing line between Lake Erie and Maumee Bay.

In showing the period of migration, three dates are given: First seen, maximum on one trip, and last seen. The figure in parentheses following the date indicates the number of individuals. To round out my data, a few significant records from other observers have been included.

American Woodcock (*Rubicola minor*). Fairly common summer resident. March 22 (1); August 2 (10); October 26 (3). Found in the wooded margins.

Wilson's Snipe (*Capella gallinago delicata*). Common migrant. April 12 (10 maximum); May 17 (1). Fall. July 20 (2); September 1 (8); November 9 (1).

Long-billed Dowitcher (*Limnodromus griseus scolopaceus*). Fairly common. May 4 (2); May 17 (6)—R. Bailey. Fall. July 20 (6); July 27 (25); September 1 (3).

Stilt Sandpiper (*Micropalama himantopus*). Not common. July 20 (10); July 27 (10); August 10 (2). No spring records.

Knot (*Calidris canutus*). Not common. May 16 (6)—Mrs. Littlefield; May 31 (12). No fall records.

Pectoral Sandpiper (*Pisobia maculata*). Common. March 16 (50)—Mrs. Littlefield; April 26 (300); May 25 (1). Fall movement, July 14 (5); August 3 (100); October 18 (8).

White-rumped Sandpiper (*Pisobia fuscicollis*). Rare migrant. May 31 (1); June 8 (1); July 27 (1).

Baird's Sandpiper (*Pisobia bairdi*). Rare migrant. May 31 (2); July 27 (1); August 10 (1).

Least Sandpiper (*Pisobia minutilla*). Common. May 11 (6); May 25 (25); May 31 (20). Fall. July 13 (10); August 3 (200); October 5 (1).

Red-backed Sandpiper (*Pelidna alpina sakhalina*). Common. May 11 (2); May 31 (20); June 8 (4). Fall. October 5 (1); October 18 (15); November 2 (4).

Semipalmated Sandpiper (*Ereunetes pusillus*). Common. May 11 (1); May 25 (100); June 8 (75). Fall. July 4 (2); July 27 (200); September 27 (1).

Western Sandpiper (*Ereunetes mauri*). Rare (?). July 27 (2); August 2 (2).

Sanderling (*Crocethia alba*). Regular in small numbers in fall. June 7 (10); July 13 (3); July 26 (15); September 27 (5).

Greater Yellowlegs (*Totanus melanoleucus*). Common. March 16 (25)—Mrs. Littlefield; April 26 (25); May 11 (5). Fall. July 19 (2); August 10 (50); November 22 (1).

Yellow-legs (*Totanus flavipes*). Common. April 12 (2); May 4 (50); May 25 (14). Fall. July 14 (10); July 20 (100); October 5 (15).

Solitary Sandpiper (*Tringa solitaria solitaria*). Regular in small numbers. April 27 (1); May 6 (3); May 31 (1). Fall. July 20 (2); August 10 (5); September 1 (1).

Western Willet (*Catoptrophorus semipalmatus inornatus*). Very rare migrant. August 17 (1).

Upland Plover (*Bartramia longicauda*). Not common summer resident. May 16 (1); August 3 (12); August 24 (4).

Buff-breasted Sandpiper (*Tryngites subruficollis*). Rare migrant. September 1 (2).

Spotted Sandpiper (*Actitis macularia*). Common summer resident. April 27 (4); August 17 (20); September 20 (1).

Hudsonian Curlew (*Numenius hudsonicus*). Rare migrant. May 17 (4)—Lawrence Hicks. The same day a flock of twenty was seen by the writer at Lakeside, Ohio.

Black-bellied Plover (*Squatarola squatarola cynosurae*). Common. May 16 (6); May 25 (125); June 8 (8). Fall. August 3 (2); August 24 (25); November 22 (1).

Golden Plover (*Pluvialis dominica dominica*). Common. March 16 (13); April 26 (100); June 1 (1)—Charles Walker. These birds arrived still in winter plumage. Fall. August 17 (1); September 21 (40); November 16 (12).

Killdeer (*Oxyechus vociferus vociferus*). Common summer resident. February 23 (1); August 3 (500); November 23 (3).

Semipalmated Plover (*Charadrius semipalmata*). Common. May 11 (35); May25 (150); June 8 (15). Fall. July 20 (4); August 3 (125); September 21 (1).

Piping Plover (*Charadrius meloda*). Rare summer resident. June 24, two pairs—Joe Bailey.

Ruddy Turnstone (*Arenaria interpres morinella*). Fairly common. May 17 (6); May 31 (100); June 8 (10). Fall. July 26 (6); August 24 (1).—Louis W. Campbell, *Toledo, Ohio.*

The Breeding of the Blue-Gray Gnatcatcher in Northwestern Iowa.—For the past two years we have heard the song of the Blue-gray Gnatcatcher (*Polioptila caerulea caerulea*), and at various times have seen the songster from a distance, but until this summer (1931) have been unable to observe the bird closely.

This year we first heard the song the latter part of May. On June 14 we first saw the bird sitting in an ash tree some thirty or thirty-five feet above the ground, singing. The song, although faint, is a cheery one. In the many times we have heard it we have been unable to tell which notes were accented, but we are fairly certain that the second and fifth ones are. The song is very sweet, short, and often repeated. On this particular day, after singing its little song, it darted down from its limb and struck at the head of a female Cowbird as she sat with her mate on the branch below. As soon as it struck it darted back to its perch and sang again. This was repeated anyway a dozen times. Its movements were swift and as it sang each note the tail gave a little jerky flip.

An hour or so later I went out to the ash tree by the front walk and stood looking at the leaves through the glasses. Soon the little bird flew to a clump of leaves and alighted there for possibly fifteen or twenty seconds. Then it scurried down the limb for a couple of feet, and soon disappeared into another little clump of foliage just below the limb. Upon examining the spot more closely I discovered a tiny nest hanging in the fork of a branch some twenty-six feet over the sidewalk. At first the nest appeared to be empty. Then I saw a tail sticking out of it, and a little later a head peered over the edge. In the many times afterwards when we went out to look at it we always noticed that only the tail showed until our presence was discovered, when the head would appear.

On June 21 we first noted that the birds were carrying insects to the nest. A week and a half later I saw three young birds fly from the ash tree, and soon after they were in the elm south of the house. One of the old birds was with them. Since then I have not seen the young ones, but every once in a while the male could be seen sitting high up in one of the cottonwood trees, singing.—Margaret L. Weir, *Hawarden, Iowa.*

Goldfinches Feeding Upon Goatsbeard Seeds.—Mrs. J. M. Leen of Ray, Williams County, North Dakota, writes that she has been watching the Goldfinches feeding upon seeds of the goatsbeard (*Tragopogon pratensis*). She states that a friend observed as many as fifty birds in a flock feeding on these seeds. She sends a head of the plant in the condition in which they are taken. This agrees with my own observation on the dandelion, that some of the bracts are removed and the seeds picked out just before the head is ripe enough to open for the seeds to blow. The goatsbeard is abundant in North Dakota, especially in the central and western part, apparently becoming much more common and spreading eastward in recent years.—O. A. Stevens, *Fargo, N. D.*

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Griscom, Ludlow, Museum of Comparative Zoology, Cambridge, Mass....1926
Haarer, John W., 207 St. Joseph Street, West, Lansing, Michigan....1930
Hammett, Francis H., Marysville, R. F. D. No. 5, Kansas....1930
Havemeyer, Henry O., Mahwah, New Jersey....1930
Himmel, Walter J., Dept. of Botany, University of Nebraska, Lincoln, Nebr....1916
Jenks, Randolph, Mesa Ranch School, Mesa, Arizona....1930

§Deceased.
*Life Member.
†Rejoined.

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Kern, Rev. John D., Osage, Iowa....1931
Knickerbocker, C. K., 1214 McCormick Building, Chicago, Illinois....1916
Loesch, Frank J., Room 1540, 10 South LaSalle Street, Chicago, Illinois....1928
*Lyon, W. I., 124 Washington Street, Waukegan, Illinois....1921
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McIllhenny, Edward Avery, Avery Island, Louisiana....†1910
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Monk, Harry C., Avoca Apartments, Nashville, Tennessee....1920
Mullins, Mrs. Leila Shaw, 1411 Chestnut Street, Atlantic, Iowa....1930
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Saunders, W. E., 352 Clarence Street, London, Ontario, Canada....1902
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Scott, R. H., 109 West Main Street, Lansing, Michigan....1930
Shearer, Dr. Amon Robert, Mont Belvieu, Chambers County, Texas....1893
Simons, Joseph, Box 4, 316 South LaSalle Street, Chicago, Illinois....1928
Stephens, Dr. T. C., Morningside College, Sioux City, Iowa....1911
Stoddard, H. L., Route 5, Sherwood Plantation, Thomasville, Georgia....1916
Sutton, George Miksch, Bethany, West Virginia....1920
Swenk, Prof. Myron H., 1410 North 37th Street, Lincoln, Nebraska....1914
*Taylor, Mrs. H. J., 900 Santa Barbara Road, Berkeley, California....1916
*Taylor, Dr. A. C., University General Hospital, Madison, Wisconsin....1929
Thayer, John Eliot, Box 98, George Hill Road, Lancaster, Massachusetts....1903
Thorne, Mrs. W. V. S., 810 5th Avenue, New York City....1930
Tinker, E. R., 711 Fifth Avenue, New York City....1930
Tucker, Mrs. Carl Penwood, Mount Kisco, New York....1928
Uhrig, Mrs. A. B., Oconomowoc, Wisconsin....1926
Young, Colonel John P., Renwick Drive, Ithaca, New York....1913

ACTIVE MEMBERS

Adams, Roy H., North Street Station, Nacogdoches, Texas....1930
Aldrich, John W., Cleveland Museum of Natural History, Cleveland, Ohio....1930
Allen, Dr. Arthur A., McGraw Hall, Cornell University, Ithaca, New York....1914
Anderson, Edwin C., R. F. D. No. 4, Dell Rapids, South Dakota....1921
Ayres, Douglas, Jr., 111 Canah Street, Fort Plain, New York....1924
Bailey, Alfred M., Chicago Academy of Science, Chicago, Illinois....1928
Bailey, Mrs. Florence Merriam, 1834 Kalorama Road, Washington, D. C....1911
Bailey, Mrs. Mary L., 2109 Nebraska Street, Sioux City, Iowa....1918
Bailey, Reeve M., 2230 Laurence Avenue, Toledo, Ohio....1931
Baird, Robert L., 279 Oak Street, Oberlin, Ohio....1902
Baker, Luther, 205 Delta Street, East Lansing, Michigan....1931
Bartsch, Dr. Paul, U. S. National Museum, Washington, D. C....1894
Bennett, Walter W., 1629 West Palmer Avenue, Sioux City, Iowa....†1925
Bergtold, Dr. William Harry, 1159 Race Street, Denver, Colorado....1916
Blincoe, Benj. J., Route 13, Dayton, Ohio....1920
Book, Miss Lois Adelaide, 733 Franklin Street, Columbus, Indiana....1930
Bowdish, Beecher Scoville, Demarest, New Jersey....1924

Breckenridge, Walter J., Museum of Natural History, University of Minnesota, Minneapolis, Minnesota....1930
Brooks, Henry Winston, Jr., Hotel Prince George, New York City....1931
Brooks, Major Allan, Okanagan Landing, British Columbia, Canada....1930
Brown, Elmer E., 1602 Walker Avenue, Greensboro, North Carolina....1931
Bruun, Chas. A., 1510 Central Avenue, Hot Springs, Arkansas....1921
Bryens, Oscar McKinley, McMillan, Luce County, Michigan....1924
Bull, Chas. Livingston, Oradell, New Jersey....1931
Burdick, Harold C., Zoological Building, S. U. I., Iowa City, Iowa....1929
Burdick, Dr. George Merton, Box 176, Milton, Wisconsin....1921
Burleigh, Thos. D., U. S. Biological Survey, Asheville, North Carolina....1923
Burleigh, Dr. W. J., 53 Aberdeen Place, Hillcrest, St. Louis, Missouri....1927
Burtch, Verdi, Branchport, New York....1924
Butler, Dr. Amos W., 52 Downey Avenue, Indianapolis, Indiana....1911
Butler, Rev. L. Ermil, First Methodist Episcopal Church, Bidwell, Ohio....1926
Cahn, Dr. Alvin R., 902 West Nevada Street, Urbana, Illinois....1917
Camp, R. D., Box 495, Brownsville, Texas....1925
Carr, William H., % American Museum of Natural History, New York City....1930
Carroll, J. J., Box 356, Houston, Texas....1926
Chaffee, H. L., Amenia, North Dakota....1930
Chapman, Dr. Frank M., American Museum of Natural History, 77th Street and Central Park West, New York City, N. Y....1910
Clay, Miss Marcia B., Bristolville, Ohio....1925
Clow, Miss Marion, Box 163, Lake Forest, Illinois....1929
Coffel, Hal. H., Pennville, Jay County, Indiana....1929
Coffey, Ben, 1434 Bank of Commerce Building, Memphis, Tennessee....1927
Cole, Dr. Leon J., Agricultural-Chemical Building, Madison, Wisconsin....1921
§Commons, Frank W., 608 Chamber of Commerce, Minneapolis, Minnesota....1923
Cook, G. M., 39 Tod Lane, Youngstown, Ohio....1923
Cookman, Alfred, 909 Bradford Street, Pomona, California....1928
Coryell, Sherman, 1500 Hood Avenue, Chicago, Illinois....1920
Coursen, C. Blair, 651 East 69th Place, Chicago, Illinois....1927
Danforth, Stuart T., College of Agriculture, Mayaguez, Porto Rico....1925
Darling, A. B., 4501 Country Club Boulevard, Sioux City, Iowa....1925
Deane, Ruthven, 112 West Adams Street, Room 813, Chicago, Illinois....1910
DeLury, Dr. Ralph E., Dominion Observatory, Ottawa, Ontario, Canada....1921
Dickey, Donald R., California Institute of Technology, Pasadena, California....1912
Dickinson, F. R., 1518 Astor Street, Chicago, Illinois....1931
Dickinson, Joseph Edward, 409 N. Horsman Street, Rockford, Illinois....1923
Doolittle, E. A., Box 44, Painesville, Ohio....1925
Douglas, Donald W., Bird Section, University Museum Building, Ann Arbor, Michigan....1929
DuMont, Philip A., Wilton, Connecticut....1928
Earl, Thomas M., R. F. D. No. 5, Box 40, Xenia, Ohio....1921
Ehinger, Dr. C. E., 730 Grand Avenue, Keokuk, Iowa....1926
Eifrig, Prof. C. W. G., 1029 Monroe Avenue, River Forest, Illinois....1907
Ekblaw, Dr. George E., 233 West Orleans, Paxton, Illinois....1914
Ekblaw, Dr. W. Elmer, Clark University, Worcester, Massachusetts....1910
Emilio, S. Gilbert, 7 Winter Street, Salem, Massachusetts....1930
Everman, Dr. Barton Warren, California Academy of Science, San Francisco, California....1931
Fields, E. A., 2111 Douglas Street, Sioux City, Iowa....1925
Fleming, James Henry, 267 Rusholme Road, Toronto 4, Ontario, Canada....1906
Floyd, Joseph L., 1009-11 Geo. D. Harter Bank Building, Canton, Ohio....1903
Ford, Edward Russell, 7077 Ridge Avenue, Chicago, Illinois....1914
Frazer, T. Atchison, M. D., Marion, Kentucky....1930
Freer, Ruskin S., Lynchburg College, Lynchburg, Virginia....1930
Gabrielson, Ira N., 516 Post Office Building, Portland, Oregon....1913
Gault, Benjamin True, 424 South Main Street, Glenn Ellyn, DuPage County, Illinois....1895

Gillespie, R., Bay City Business College, Bay City, Michigan....1930
Gleason, Jr., Clark H., Box 47, Placerville, California....1929
Gleason, Louisa R. (Mrs. Clark H.), 700 Madison Avenue, South East, Grand Rapids, Michigan....1921
Goddard, Henry N., Western State Normal School, Kalamazoo, Michigan....1926
Goetz, Christian J., 3503 Middleton Avenue, Cincinnati, Ohio....1930
Green, Prof. George Rex, Dept. of Natural Education, The Pennsylvania State College, State College, Pennsylvania....1930
Gregory, Jr., Stephen S., Box N., Winnetka, Illinois....1922
Grinnell, Dr. Joseph, Museum of Vertebrate Zoology, University of California, Berkeley, California....1914
Guest, Marjorie Lee, State Hospital, Athens, Ohio....1924
Guthrie, Prof. Joseph E., 319 Lynn Avenue, Ames, Iowa....1922
Handley, Chas. O., Ashlund, Virginia....1925
Hankinson, Prof. T. L., 96 Oakwood Avenue, Ypsilanti, Michigan....1911
Hann, Dr. Harry W., Associate Professor of Zoology, University of Michigan, Ann Arbor, Michigan....1930
Hayward, W. J., 2919 Jackson Street, Sioux City, Iowa....1913
Hedge, Homer William, 203 Kansas Avenue, Holton, Kansas....1931
Heft, Russell D., Route 2, Nevada, Ohio....1928
Henderson, Archibald Douglas, Belvedere, Alberta, Canada....1922
Henderson, Prof. Junius, 1305 Euclid Avenue, Boulder, Colorado....1903
Herrick, Dr. Francis H., Biological Laboratory, Western Reserve University, Cleveland, Ohio....1916
§Hine, Prof. James S., Ohio State University, Columbus, Ohio....1910
Hinshaw, Thomas D., 1908 Scottwood Avenue, Ann Arbor, Michigan....1926
Hoffman, E. C., 1041 Forest Cliff Drive, Lakewood, Ohio....1925
Holcombe, C. E., 2917 Ezra Avenue, Zion, Illinois....1927
Holley, Mrs. H. P., 420 West 8th Avenue, Bristow, Oklahoma....1930
Holt, Ernest Golsan, 312 Bell Building, Montgomery, Alabama....1926
Howell, Arthur Holmes, 2919 South Dakota Avenue, Washington, D. C....1921
Hunt, Chreswell J., 810 South Eighteenth Avenue, Maywood, Illinois....1904
Hutchinson, Chas., 500 Crocker Building, Des Moines, Iowa....1930
Hyde, B. T. B., 558 Camino del Monte Sol, Santa Fe, New Mexico....1928
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Jung, Clarence S., 2502 E. Stratford Court, Milwaukee, Wisconsin....1921
Kahmann, Karl W., R. F. D. No. 2, Hayward, Wisconsin....1914
Kee, Hunter, 36 Ninth Avenue, Marlinton, West Virginia....1922
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Kendeigh, Dr. S. Charles, Biological Laboratory, Western Reserve University, Cleveland, Ohio....1923
Keyes, Prof. Chas. R., Cornell College, Lock Box J., Mount Vernon, Iowa....1925
Kirn, Albert J., Box 157, Somerset, Texas....1918
Kretzmann, Dr. Paul E., 801 DeMun Avenue, St. Louis, Missouri....1924
Lambert, Earl Logan, 237 North First Street, Carthage, Illinois....1922
Larrabee, Prof. Austin P., Yankton College, Yankton, South Dakota....1921
Laskey, Mrs. F. C., Graybar Lane, Nashville, Tennessee....1928
Law, J. Eugene, Box 247, Altadena, California....1911
Leopold, Aldo, 222 Van Hise Avenue, Madison, Wisconsin....1928
Levings, James Eads, 420 West Court Street, Paris, Illinois....1929
Lewis, John B., Amelia, Virginia....1924
Lewy, Dr. Alfred, 2051 East Seventy-second Place, Windsor Park Station, Chicago, Illinois....1916
Longstreet, Rupert James, Daytona Beach, Florida....1924
Loring, J. Alden, Owego, Tioga County, New York....1926
Lowe, John N., Northern State Teachers College, Marquette, Michigan....1927
Lyon, Mary C., 811 North Sheridan Road, Waukegan, Illinois....1925
McAtee, W. L., Biological Survey, United States Department of Agriculture, Washington, D. C....†1911
McCabe, T. T., Barkerville, British Columbia, Canada....1928

McCreary, Otto, Agricultural Hall, University of Wyoming, Laramie, Wyo.....1930
McGregor, Richard C., Bureau of Science, Manila, Philippine Islands.....1919
McNeil, Dr. Chas. A., 111 West Fourth Street, Sedalia, Missouri.....1922
Magann, J. Wilbur, Oklahoma Gas and Electric Co., Oklahoma City, Okla.....1927
Maillard, Joseph, 1815 Vallijo Street, San Francisco, California.....1930
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Malcomson, R. O., 1603 Ross Street, Sioux City, Iowa.....†1926
Marsh, Mai, 1005 Lexington Avenue, Altoona, Pennsylvania.....1927
Mayfield, Dr. George R., Vanderbilt University, Nashville, Tennessee.....1917
Metcalf, Dr. Franklin P., % Arnold Aboretum, Harvard University, Jamaica Plain, Massachusetts 1919
Metcalf, Dr. Zeno P., State College, West Raleigh, North Carolina.....1900
Middleton, Raymond Jones, Marshall Street and Whitehall Road, Norristown Delivery, Jeffersonville, Pennsylvania.....1921
Millard, Mrs. F. A., 1032 North Fourth Street, Burlington, Iowa.....1926
Minich, Edward C., 1047 Fairview Avenue, Youngstown, Ohio.....1923
Morse, Harry G., Huron, Ohio.....1923
Morse, Margarette E., Viroqua, Wisconsin.....1922
Moseley, Prof. Edwin Lincoln, State College, Bowling Green, Ohio.....1921
Mote, G. A., Marshalltown, Iowa.....1930
Mounts, Mrs. Beryl Taylor (Mrs. Lewis H.), Ballard Normal School, Macon, Georgia.....1923
Munger, Mrs. Edith, Pres., Michigan Audubon Society, Hart, Michigan.....1925
Neff, Johnson A., P. O. Box 935, U. S. Biological Survey, Marysville, Calif.....1921
Nice, Mrs. Margaret M., 156 West Patterson Avenue, Columbus, Ohio.....1921
Oberholser, Dr. Harry Church, 2805 Eighteenth Street, N. W., Washington, D. C. 1894
Olsen, Richard E., 1120 East Ann Street, Ann Arbor, Michigan.....1930
Over, Prof. Wm. H., University Museum, Vermillion, South Dakota.....1930
Palas, A. J., 663 Forty-ninth Street, Des Moines, Iowa.....1923
Palmer, Dr. Theodore Sherman, 1939 Biltmore Street, N. W., Washington, D. C. 1914
§Pammel, Dr. L. H., Iowa State College, Ames, Iowa.....1929
Parker, Herbert, South Lancaster, Massachusetts.....1928
Pemberton, John Roy, 525 North Palm Drive, Beverly Hills, California.....1922
Pennock, Charles John, Kennett Square, Chester County, Pennsylvania.....1900
Pettingill, Jr., Olin S., Maple Street, Middleton, Massachusetts.....1930
Phillips, Dr. John H., 2117 Blair Boulevard, Nashville, Tennessee.....1921
Pickwell, Dr. Gayle B., Dept. of Natural Science, San Jose State Teachers College, San Jose, California.....1925
Porter, James V., Box 266, Glenwood, Minnesota.....1929
Praeger, Prof. Wm. E., 2 College Grove, Kalamazoo, Michigan.....1916
Price, Homer F., Payne, Ohio.....1931
Prill, Dr. Albert G., Main Street, Scio, Oregon.....1892
Quattlebaum, W. D., 1925 Paloma Street, Pasadena, California.....1930
Quillian, Prof. Marvin C., Wesleyan College, Macon, Georgia.....1927
Randall, Mrs. W. S., 618 East Fifteenth Street, Oklahoma City, Oklahoma.....1925
Reed, Mrs. C. I. (Bessie P.), 738 South Highland, Oak Park, Illinois.....1924
Reid, Russell, 811 Twelfth, Bismarck, North Dakota.....1920
Richardson, W. D., 4215 Prairie Avenue, Chicago, Illinois.....1918
Riley, Joseph Harvey, U. S. National Museum, Washington, D. C.....1914
Roads, Katie M., 463 Vine Street, Hillsboro, Ohio.....1914
Robinson, J. M., Box 264, Alabama Polytechnic Institute, Auburn, Alabama.....1923
Rodock, Roy E., Lewistown State Normal School, Lewistown, Idaho.....1928
Rosene, Walter M., Ogden, Iowa.....1923
Ross, Marjorie Ruth, R. F. D. 3, Freeville, New York.....1921
Runk, Otto H., Mt. Kisco, New York.....1930
Rust, Henry J., Box 683, Coeur d'Alene, Idaho.....1921
Sallee, Roy M., 131 North Normal Street, Macomb, Illinois.....1930
Satterthwait, Elizabeth Allen, Webster Groves, Missouri.....1925

Savage, James, Buffalo Athletic Club, Buffalo, New York....1930
Schantz, O. M., 3219 Maple Avenue, Berwyn, Illinois....1903
Schorger, Dr. A. W., 2021 Kendall Avenue, Madison, Wisconsin....1927
Shadle, Prof. Albert R., Biology Department, University of Buffalo, Buffalo, New York....1930
Shaftesbury, Archie D., N. C. C. W., Greensboro, North Carolina....1930
Shaver, Dr. Jesse M., George Peabody College for Teachers, Nashville, Tennessee....1922
Shelford, Prof. Victor, Vivarium Building,University of Illinois, Urbana, Ill....1931
Sherwood, Jack W., Box 264, Salinas, California....1929
Silliman, Oscar Peny, Corner Alisal and Riker Streets, Salinas, Monterey County, California....1914
Simmons, Geo. Finlay, 2727 Euclid Avenue, Cleveland, Ohio....1928
Skinner, M. P., 5840 John Avenue, Long Beach, California....1926
Smith, Prof. Frank M., 79 Fayette Street, Hillsdale, Michigan....1910
Smith, Frank R., Fredericktown, Pennsylvania....1930
Smith, Prof. Jesse L., 334 Vine Street, Highland Park, Illinois....1925
Smith, Malcom M., 327 Ashbourne Road, Elkins Park, Pennsylvania....1927
Spann, Liza, Averett College, Danville, Virginia....1930
Spear, James, Wallingford, Pennsylvania....1928
Spiker, Chas. J., New Hampton, Iowa....1916
Stack, Prof. Joseph W., Department of Zoology, Michigan State College, East Lansing, Michigan....1925
Stacker, Margaret, Cumberland City, Tennessee....1930
Stewart, Clare R. (Mrs. L. P.), 3475 Morrison Place, Cincinnati, Ohio....1923
Stickney, Gardner, 3218 North Summit Avenue, Milwaukee, Wisconsin....1922
Stoner, Dr. Dayton, New York State College of Forestry, Syracuse, N. Y....1917
Strecker, John Kern, Baylor University, Waco, Texas....1929
Strong, William Abner, 247 Grand Avenue, San Jose, California....1921
Strunk, W. L., % Luther College, Decorah, Iowa....1931
Stuart, Anne, 1905 D. Street, Lincoln, Nebraska....1924
Sturgis, Mrs. S. D., 2219 California Street, N. W., Washington, D. C....1928
Sutton, Mrs. J. C., 122 South West 7th Street, Richmond, Indiana....1920
Swarth, Harry S., 2800 Prince Street, Berkeley, California....1910
Thomas, Edward S., 1116 Madison Avenue, Columbus, Ohio....1921
Thomas, H. H., Box 625, Pomeroy, Ohio....1924
Tinker, Almerin David, 519 Oswego, Ann Arbor, Michigan....1909
Todd, W. E. Clyde, Carnegie Museum, Pittsburgh, Pennsylvania....1911
Townsend, Dr. Chas. W., Ipswich, Massachusetts....1916
Treat, Dorothy Ackley, 10912 Carnegie Avenue, Suite 26, Cleveland, Ohio....1931
Tyler, Dr. Winsor M., 112 Pickney Street, Boston, Massachusetts....1914
Urner, Charles A., 596 Westminister Avenue, Elizabeth, New Jersey....1928
Van Tyne, Dr. Josselyn, Museum of Zoology, Ann Arbor, Michigan....1922
Vernon, John, Box 152, R. F. D. No. 1, South Sheridan Road, Kenosha, Wis....1929
Visscher, Dr. Paul, Biological Laboratory, Western Reserve University, Cleveland, Ohio....1924
Warren, Edward R., 1511 Wood Avenue, Colorado Springs, Colorado....1911
Weber, Alois J., 904 Grand Avenue, Keokuk, Iowa....1928
Welds, H. B., 229 Forty-second Street, Sandusky, Ohio....1930
Wertz, Miss Vara M., 101 Eighth Avenue, Juniata, Pennsylvania....1928
Wetmore, Dr. Alexander, U. S. Museum, Washington, D. C....1903
Weydemeyer, Winton, Fortine, Montana....1930
White, Francis Beach, St. Paul's School, Concord, New Hampshire....1926
Wilson, Mrs. Etta S., 9077 Clarendon Avenue, Detroit, Michigan....1928
Wilson, Frank Norman, 804 Lawrence Street, Ann Arbor, Michigan....1924
Wilson, Prof. Gordon, 1434 Chestnut Street, Bowling Green, Kentucky....1925
Wing, Leonard W., R. F. D. 3, Jackson, Michigan....1924
Wolcott, Dr. Robert H., University of Nebraska, Lincoln, Nebraska....1924
Woodrow, Mrs. J. W., 2322 Baker Street, Ames, Iowa....1931
Worthington, William A., Annville, Kentucky....1924

Wright, Dr. Albert H., 113 East Upland Road, Ithaca, New York....1921
Yoder, William H., Jr., 859 Granite Street, Philadelphia, Pennsylvania....1926
Youngworth, William, 3119 East Second Street, Sioux City, Iowa....1927

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Adams, Benjamin, Wethersfield, Connecticut....1920
Adkins, T. R., 801 Smith Young Tower, San Antonio, Texas....1926
Ainslie, Charles Nicholas, 2000 South St. Aubin, Sioux City, Iowa....1930
Alexander, Frank M., Box 95, Wellington, Kansas....1928
Allen, A. F., 302 Follis Apartments, Sioux City, Iowa....1925
Albert, Oscar P., R. F. D. No. 1, McGregor, Iowa....1923
Allison, C. W., Box 968, St. Louis, Missouri....1926
Applegate, Mrs. A. L., 2081 Lamar Boulevard, Memphis, Tennessee....1929
Appleton, J. S., 1332 Citrus, Hollywood, California....1930
Ashworth, Charles W., 76 South Laurel Street, Ventura, California....1930
Atkinson, Ethel, 1566 Western Avenue, Toledo, Ohio....1931
Austin, Dr. Oliver L., Tuckahoe, Westchester County, New York....1930
Avery, Eula V., 1123 Michigan Avenue, Ann Arbor, Michigan....1930
Bacus, Mrs. E. H., Howard, Kansas....1930
Badger, Kenneth, Burbank, R. F. D. 2, Ohio....1931
Baker, John H., 1165 Fifth Avenue, New York, New York....1930
Baker, William C., 223 W. Pershing Street, Salem, Ohio....1931
Baldwin, Mrs. Harry L., 6335 Kimbark Avenue, Apt. B., Chicago, Illinois....1926
Ball, William Howard, 1861 Ingleside Terrace, N. W., Washington, D. C....1924
Ballentine, Imogene S., 221 Deems Avenue, West New Brighton, S. I., N. Y....1930
Bamberg, John, Kingston Road, Knoxville, Tennessee....1930
Barber, Bertram Alpha, 350 West Street, Hillsdale, Michigan....1923
Barkley, Mabel A., Meredith College, Raleigh, North Carolina....1930
Baroody, Mrs. Nellie J., 3130 Wenonah Avenue, Berwyn, Illinois....1927
Barry, Anna Kingham, 5 Bowdoin Avenue, Dorchester, Massachusetts....1930
Bassett, Mrs. V. H., 1010 E. Park Avenue, Savannah, Georgia....1931
Batchelder, C. F., 7 Kirkland Street, Cambridge, Massachusetts....1927
§Bates, Rev. John Mallory, Red Cloud, Nebraska....
Beals, Mrs. Marie V., 5833 Eighty-fifth Street, Elmhurst, Long Island, N. Y....1930
Beard, Miss Mary, 406 East Fifth Avenue, Knoxville, Tennessee....1928
Beardslee, Clark S., 132 McKinley Avenue, Kenmore, New York....1931
Beebe, Ralph, 1314 Empire Avenue, Lincoln Park, Michigan....1924
Bell, Glenn W., The Berry Schools, Mt. Berry, Georgia....1930
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Benson, Seth B., Museum of Vertebrate Zoology, Berkeley, California....1930
Bergman, Miss Verna, 708 South Page Street, State College, Pennsylvania....1928
Berner, Glenn, 121 East Front Street, Jamestown, North Dakota....1930
Bevan, Mrs. Arthur, 304 Preston Court, University, Virginia....1931
Biggs, Lawrence, Dassel, Minnesota....1931
Bird, Dr. R. D., Biological Survey, University of Oklahoma, Norman Okla....1929
Birge, Miss Willie I., College of Industrial Arts, Denton, Texas....1925
Bischoff, Mrs. Marguerite Johnstone, Box 236, Summerville, South Carolina....1930
Black, J. D., Winslow, Arkansas....1925
Blanchard, Dr. Frank N., Department of Zoology, University of Michigan, Ann Arbor, Michigan....1928
Blijdenstein, Louis, Box 262, Leesburg, Florida....1930
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Blosser, Sallie H., State Teachers College, Harrisonburg, Virginia....1930
Bloom, Nellie R., 108 W. Lowett Avenue, Shenandoah, Iowa....1930
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Bolt, Benj. F., 5300 Brookside Boulevard, Kansas City, Missouri....1917
Bonesteel, V. C., American National Bank, Aurora, Illinois....1925
Bordner, Mrs. Robert I., Hudson, Iowa....1930

Borror, Donald J., Department of Zoology and Entomology, Ohio State University, Columbus, Ohio....1927
Bossler, John, Hamburg, Berks County, Pennsylvania....1928
Boulton, Wolfrid Rudyard, Jr., Carnegie Museum, Pittsburg, Pennsylvania....1922
Bowman, John G., University of Pittsburgh, Pittsburgh, Pennsylvania....1928
Bradford, Miss Mary A., Moline High School, Moline, Illinois....1930
Bradshaw, F., Director, Prov. Museum, Normal School, Regina, Saskatchewan, Canada....1930
Brady, Dr. John A., St. Augustine College, Lakewood, Ohio....1925
Braly, John Claude, 285 Fairfax Terrace, Portland, Oregon....1927
Brasher, Rex, Chickadee Valley, Kent, Connecticut....1926
Bready, Mrs. Marcia B., 99 Waban Hill Road, North Chestnut Hill, Mass....1930
Bridges, Harvey A., Fayetteville, Tennessee....1930
Brigham, Edw. M., Jr., Museum of Natural History, Battle Creek, Michigan....1930
Brooks, A. B., Ogelbay Park, Wheeling, West Virginia....1931
Brooks, Maurice, French Creek, West Virginia....1926
Broomhall, W. H., Stockport, Ohio....1926
Brown, S. H., West Lawn, Pennsylvania....1930
Browning, Miss Louanna, Box 1346, Department D., Columbus, Ohio....1930
Bruce, Jim A., 557 Spring Street, Wooster, Ohio....1929
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Buchheister, Carl W., The Lawrence School, Hewlett, Long Island, N. Y....1929
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Bulthouse, Peter, R. F. D. No. 3, Napierville, Illinois....1930
Bunting, Henry, 2020 Chadbourne Avenue, Madison, Wisconsin....1930
Burcham, Frank W., 510 North Church Street, Fayette, Missouri....1929
Burgdorff, Miss Sophie, 1813 Rock Road, Cleveland Heights, Ohio....1931
Burk, W. L., 701 East Third Street, Vinton, Iowa....†1930
Burkhard, Fred, Accident, Maryland....1922
Burnett, Prof. W. L., State Agricultural College, Fort Collins, Colorado....1926
Burt, W. H., California Institute of Technology, Pasadena, California....1928
Butler, Cora C., 624 West 70th Street, Kansas City, Missouri....1930
Buzby, Mrs. William, 221 Greene Street, Boone, Iowa....1930
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Canby, Caroline P., 11275 San Fernando Road, San Fernando, California....1931
Carlson, Prof. Carl Olof, Dept. of Biology, Doane College, Crete, Nebraska....1923
Carman, Mrs. F. S., R. F. D. No. 2-27, Grand Junction, Colorado....1930
Carter, John D., Lansdowne, Pennsylvania....1930
Carter, S. E., 309 North Pioneer Avenue, Ashland, Oregon....1931
Cartwright, Bertram William, 392 Woodlaun Street, Deer Lodge, Winnipeg, Canada....1930
Case, Mrs. F. E., 1717 Market Avenue, North, Canton, Ohio....1928
Cathcart, Maude Eola, Appalachian State Teachers College, Boone, N. C....1930
Chamberlain, Chauncey W., Hotel Hemenway, Boston, Massachusetts....1922
Chamberlain, Glen D., Suite 20, 60 Queensbury Street, Boston, Mass....1930
Chilcott, Mrs. E. F., Woodward, Oklahoma....1923
Christianson, Anna, 1812 Jackson Street, Sioux City, Iowa....1925
Christy, Bayard H., Box 950, Pittsburgh, Pennsylvania....1922
Clark, Mrs. C. C., 922 North Third Street, Burlington, Iowa....1925
Clark, George R., Cynwyd, Pennsylvania....1931
Clayton, Luella B., Feasterville, Pennsylvania....1930
Clendinen, Dr. L. Jack, 105 Collins Street, Melbourne, Victoria, Australia....1930
Coles, Victor, 2910 Grasselli Avenue, Westwood, Cincinnati, Ohio....1929
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Compton, Lawrence Verlyn, Museum of Vertebrate Zoology, University of California, Berkeley, California....1923
Compton, Leila A., 422 Eddy Street, Ithaca, New York....1930
Conant, Roger, Toledo Zoological Park, Toledo, Ohio....1930
Cook, Fannye A., Crystal Springs, Mississippi....1925
Cook, Florence R., Grand Meadow, Minnesota....1930

Cook, Mrs. Horace P., 412 W. 11th Street, Anderson, Indiana....1931
Cook, William Bolton, 5 Oakley Avenue, White Plains, New York....1930
Cottam, Clarence, Bureau of Biological Survey, Washington, D. C....1929
Couper, Mrs. E. A., Britt, Iowa....1930
Cox, P. E., Memorial Building, Nashville, Tennessee....1929
Crabb, Alfred, 1701 Eighteenth Avenue, South, Nashville, Tennessee....1930
Cramer, William G., Apartment 10, The Nelson, 2501 Kemper Lane, Cincinnati, Ohio....1923
Crook, Compton N., Jr., 2207 Leslie Avenue, Nashville, Tennessee....1929
Crouch, Brockway, % Flower Craft, Knoxville, Tennessee....1931
Crouch, James, 214 Tharston Avenue, Ithaca, New York....1930
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Currier, Edmonde S., 416 E. Chicago Street, St. Johns Station, Portland Ore....1930
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Cutter, Mrs. J. T., Castana, Iowa....1930
Dales, Mrs. Marie, 14 Twenty-fourth Street, Sioux City, Iowa....1925
Danner, Mrs. Mary S., 1646 Cleveland Avenue, N. W., Canton, Ohio....1921
Davis, George, State Teachers College, Murfreesboro, Tennessee....1930
Davis, Mrs. L. N., 2016 Lexington Avenue, Ashland, Kentucky....1925
Dawley, Jean Wilson, 1361 Granger Avenue, Lakewood, Ohio....1931
Deaderick, Dr. Wm. H., 36 Circle Drive, Hot Springs, Arkansas....1931
Denison, Maggie, Galloway College, Searcy, Arkansas....1930
Dennis, Wm. A., R. F. D. No. 1, Paris, Illinois....1930
DePree, Con, Macatana Road, Holland, Michigan....1930
Dille, Fred M., Rapid City, South Dakota....1912
Dingle, Edward von Seibold, Huger, South Carolina....†1925
Dole, J. Wilbur, 51 East Stone Street, Fairfield, Iowa....1930
Dolman, Helen, 1010 Washtenaw Avenue, Ypsilanti, Michigan....1929
Dragoo, Miss Lavinia, 826 E. Avenue, West, Cedar Rapids, Iowa....1929
DuMont, Mrs. W. G., 2700 Forty-ninth Street, Des Moines, Iowa....1929
Duston, Mrs. A. W., 1744 South Yorktown, Tulsa, Oklahoma....1926
Dyer, Mrs. Minnie M., Byington, Tennessee....1930
Eastman, Mrs. E. P., 719 Columbia Street, Burlington, Iowa....1926
Eastwood, Sidney K., 301 South Winebiddle Avenue, Pittsburgh, Pa....1928
Edelen, Muir, 1820 Pendleton Avenue, Kansas City, Missouri....1930
Edge, Mrs. Charles Noel, 113 East 72nd Street, New York, New York....1931
Edminster, Jr., Frank C., 107 Wood Street, Ithaca, New York....1930
Edson, J. M., 90 Marietta Road, Bellingham, Washington....1928
Edwards, Mrs. W. H., Fairhope, Alabama....1929
Eheim, J. M., 236 South Adams Street, Hutchinson, Minnesota....1926
Eiffert, Paul, R. F. D. No. 1, St. Cloud, Minnesota....1927
Eldredge, Everett K., West Chatham, Cape Cod, Massachusetts....1930
Elrod, Mrs. Walter DeWitt, Box 103, Okmulgee, Oklahoma....1923
Ellsworth, Miss Mary, 3107 Redick Avenue, Omaha, Nebraska....1930
Emerson, William Otto, Box 39, R. F. D. No. 1, Palm Cottage, Hayward, California....1922
Erickson, Mary M., Museum of Vertebrate Zoology, University of California, Berkeley, California....1930
Erwin, Mrs. Marjorie B., Williamsburg, Iowa....1926
Esten, Sidney R., 4112 Graceland Avenue, Indianapolis, Indiana....1931
Evans, Dr. Evan M., 550 Park Avenue, New York, New York....1929
Evins, Samuel N., 38 East Fourteenth Street, Atlanta, Georgia....1922
Fekst, Henry, 3240 North Third Street, Milwaukee, Wisconsin....1928
Felton, W. R., 1709 Summit Street, Sioux City, Iowa....1930
Fennell, Chester M., Box 160, R. F. D. No. 1, Olmsted Falls, Ohio....1930
Field, Caroline L., 38 Hampton Court, 1461 Mountain Street, Montreal, P. Q., Canada....1930
Finfrock, C. M., 3186 Oak Road, Cleveland, Ohio....1926

Finster, Ethel B., Asheville Normal School, Asheville, North Carolina....1930
Fischer, Donald, Shakopee, Minnesota....1926
Fisher, Dr. G. Clyde, American Museum of Natural History, New York, New York....1925
Fitzpatrick, Dr. F. L., Teachers' College, Columbia University, New York, New York....1924
Fitz-Gerald, Mary E., 541 N. Clay Avenue, Kirkwood, Missouri....1930
Fleetwood, Raymond J., Kurtz, Indiana....1931
Fletcher, Jane Ada, "Lyeltya", Eaglehawk Neck, Tasmania....1930
Flickinger, Frederick R., 2402 Putnam Street, Toledo, Ohio....1929
Floyd, Charles B., 454 Wolcott Street, Auburndale, Massachusetts....1924
Force, Edith R., 3021 East Eighth Street, Tulsa, Oklahoma....1926
Ford, Louise P., Barnwell Avenue, Aiken, South Carolina....1921
Fordyce, George Lincoln, 40 Lincoln Avenue, Youngstown, Ohio....1914
Frankel, Mrs. Henry, 301 Tonawanda Drive, Des Moines, Iowa....1925
Franzen, A. J., Field Museum, Chicago, Illinois....1929
Frazier, John M., Station A., Box 156, Hattiesburg, Mississippi....1930
Fredholm, Miss Saide, R. F. D. No. 5, Mountain Grove, Missouri....1930
French, Mrs. Mena, Box 171, Wayland, Massachusetts....1928
Friedrich, George Walter, 3029 Belmont Avenue, Chicago, Illinois....1914
Fryklund, P. O., Roseau, Roseau County, Minnesota....1926
Fulton, Lester B., 7000 North Rockwell Street, Chicago, Illinois....1929
Funk, Mrs. A. B., 649 Harwood Drive, Des Moines, Iowa....1925
Funkhouser, Dr. William D., Dept. of Zoology, University of Kentucky, Lexington, Kentucky....1918
Gall, Harold J. F., 1427 Belle Plaine Avenue, Chicago, Illinois....1931
Gander, Miss Erma M., 604 Caldwell-Murdock Building, Wichita, Kansas....1930
Gander, Frank F., Natural History Museum, Balboa Park, San Diego, Calif....1928
Gardiner, A. W., 1010 Standard Bank Building, Cleveland, Ohio....1931
Geist, Robert Miller, Dept, of Biology, Capital University, Columbus, Ohio....1923
Getty, Mrs. B. M., 621 South Minnesota Avenue, Sioux Falls, South Dakota....1925
Ghigi, Prof. Allessandro, R. Universita, Bologna, Italy....1931
Gifford, Jr., Harold, 3676 Burt Street, Omaha, Nebraska....1930
Gilcrest, O. E., 5831 Waterbury Circle, Des Moines, Iowa....1930
Giles, Jr., Norman H., 959 Drewry Street, N. E., Atlanta, Georgia....1930
Gillette, Fredericka B., 1319 Forest Avenue, Ann Arbor, Michigan....1928
Gloyd, H. K., Museum of Zoology, University of Michigan, Ann Arbor, Michigan....1925
Goldsmith, Dr. G. W., Box 1611 University Station, Austin, Texas....1931
Good, Henry G., Alabama Polytechnic Institute, Auburn, Alabama....1926
Gordon, Robert B., Dept. of Botany, Ohio State University, Columbus, Ohio....1931
Grange, Wallace Byron, U. S. Biological Survey, Washington, D. C....†1927
Grant, C. P., Field Museum, Chicago, Illinois....1928
Grant, Martin Lee, University of Minnesota, Minneapolis, Minnesota....1926
Grass, Arthur M., 339 B. Street, Northeast, Linton, Indiana....1930
Graves, Mrs. Chas. B., Box 1054, New London, Connecticut....1930
Green, Dr. Wyman R., Dept. of Biology, University of Chattanooga, Chattanooga, Tennessee....1926
Greene, Earle R., 642 Orme Circle, Atlanta, Georgia....1930
Greenfield, Roy H., 127 Maple Avenue, Takoma Park, Maryland....1931
Gregory, C. E., Box 215, Morgantown, North Carolina....1928
Grimes, S. A., 109 Catherine Street, South Jacksonville, Florida....1924
Gromme, Owen J., Milwaukee Public Museum, Milwaukee, Wisconsin....1924
Gross, Dr. Alfred O., Bowdoin College, Brunswick, Maine....1927
Guernsey, Raymond G., Trust Company Building, Poughkeepsie, New York....1926
Habeger, Ruth, 401 W. Main Street, Marshalltown, Iowa....1931
Hadeler, Edward William, 336 South State Street, Painesville, Ohio....1917
Hagar, Mrs. Jack, Box 294, Corsicana, Texas....1930
Hague, Florence, Sweet Briar College, Sweet Briar, Virginia....1931
Hainsworth, William P., 214 Railroad Avenue, North Andover, Mass....1930

Hall, Mrs. J. L., Wakulla, Florida....1930
Hall, Watson, Athens, Illinois....1929
Hallinen, Joseph Edward, R. F. D. No. 1, Coopertown, Oklahoma....1922
Hallman, R. C., Box 847, St. Augustine, Florida....1928
Hamilton, Dr. B. A., Lock Box 22, Highland Park, Illinois....1916
Hanawalt, F. A., 65 West Broadway, Westerville, Ohio....1927
Hangreed, Miss Alma, Route 3, Hawley, Minnesota....1930
Hardisty, Arthur H., 4831 Thirty-sixth Street, N. W., Washington, D. C....†1927
Harkin, J. B., Commissioner, Dept. of Interior, Ottawa, Ontario, Canada....1924
Harper, Francis, 206 Dickinson Avenue, Swarthmore, Pennsylvania....1930
Harris, C. L., 921 West Central, Eldorado, Kansas....1928
Harris, Mrs. Ward E., 4805 Meredith Avenue, Lincoln, Nebraska....1930
Haverschmidt, Fr., 50, Kromme Nieuwe, Gracht, Utrecht, Holland....1930
Hebard, Helen, Bells Mill Road, Germantown Avenue, Chestnut Hill, Philadelphia, Pennsylvania....1930
Hemphill, Frederick A., 128 Broad Street, Elizabeth, New Jersey....1928
Henderson, Grant, Route 9, Greensburg, Indiana....1930
Henderson, W. C., 8 Magnolia Parkway, Chevy Chase, Maryland....1928
Henning, Carl F., Ledges State Park, Boone, Iowa....1925
Herman, Mrs. E. Olney, Momence, Illinois....1928
Hicks, Lawrence Emerson, Botany Dept., Ohio State University, Columbus, Ohio....1925
Hieatt, Martha, Danville, Kentucky....1930
Hiett, Lawrence D., 2617 Parkwood Avenue, Toledo, Ohio....1929
Hill, Helen F., 116 S. Mt. Vernon Avenue, Uniontown ,Pennsylvania....1930
Hillmer, Davis B., 454 Colburn Place, Detroit, Michigan....1926
Hilton, Dr. Davie C., 305 Richards Block, Lincoln, Nebraska....1918
Hinchman, Richard May, 501 Randolph Avenue, Milton, Massachusetts....1931
Hissong, R. D., 1908 Ingleside Avenue, Sioux City, Iowa....1927
Hoag, Benjamin, Garfield, Rensselaer County, New York....1922
Holland, Harold May, Box 515, Galesburg, Illinois....1915
Hood, Miss Ada M., 1002 Ninth Street, Sioux City, Iowa....1913
Huff, Prof. N. L., 1219 Seventh Street, Minneapolis, Minnesota....1928
Hufford, G. N., 216 Seeser Street, Joliet, Illinois....1929
Hughes, George T., Box 153, Plainfield, New Jersey....1929
Hunsaker, W. J., 1211 Second National Bank Building, Saginaw, Michigan....1931
Hurst, John H., Woodward, Dallas County, Iowa....1931
Huyler, Mrs. C. D., Greenwich, Connecticut....1931
Hyde, A. Sidney, Temple University, Philadelphia, Pennsylvania....1926
Ijams, H. P., Box 1150, Knoxville, Tennessee....1924
Ingersoll, Albert M., 908 F. Street, San Diego, California....1921
James, Mrs. A. O., 4100 Grove Avenue, Richmond, Virginia....1931
Janes, Ralph G., Dept. of Biology, Battle Creek College, Battle Creek, Mich....1930
Jay, William, 5358 Winghocking Terrace, Germantown, Philadelphia, Pa....1924
Jefferson, Mrs. Edith H., 1381 Prairie Avenue, Des Plaines, Illinois....1927
Jelier, F. P., Groote Visscherystraat 19a, Rotterdam, Holland....1931
Jenner, William A., 806 West Davis Street, Fayette, Missouri....1930
Jennings, Mrs. J. J., Hedrick, Iowa....1930
Jenser, J. P., Box 364, Dassel, Minnesota....1926
Jewell, Mrs. W. G., R. F. D. No. 2, Irving, Kansas....1930
Johnson, I. H., Bird Haven, South Hills, Charleston, West Virginia....1923
Johnson, Robert A., State Normal School, Oneonta, New York....1930
Jones, Mrs. D. F., 425 No. Park Street, Watertown, South Dakota....1928
Jones, George T., 322 West College Street, Oberlin, Ohio....1923
Jones, Harold C., 1553 North 27th Street, Lincoln, Nebraska....1929
Jones, John C., 928 Goodrich Avenue, St. Paul, Minnesota....1931
Jones, S. Paul, 509 West Avenue, North Waukesha, Wisconsin....1921
Josten, Erick, Klemme, Iowa....1928

Kalmbach, E. R., Biological Survey, U. S. Department of Agriculture, Washington, D. C.....1926
Kalter, Louis B., 535 Belmont Park, N., Dayton, Ohio.....1931
Kearby, Miss Vera, George Peabody College for Teachers, Nashville Tenn.....1927
Keim, Thomas Daniel, Glenndale, Prince George County, Maryland.....1921
Kennedy, H. N., 25 Strathmore Avenue, Garrett Park, Maryland.....1925
King, Mrs. E. R., 1416 West Fifteenth Street, Sioux City, Iowa.....1930
Kip, Herbert Z., Connecticut College, New London, Connecticut.....1931
Klewer, Louis A., 2088 North Kennison Drive, Toledo, Ohio.....1930
Klinck, Norman, 38 W. Parade Avenue, Buffalo, New York.....1927
Klotz, Charles D., Box 142, Pearisburg, Virginia.....1930
Knapp, Elmer, R. F. D. No. 2, Troy, Pennsylvania.....1930
Knappen, Phoebe, 2925 Tilden Street, North West ,Washington, D. C.....1926
Knight, Dr. Harry H., Dept. of Zoology and Entomology, Iowa State College, Ames, Iowa.....1926
Knoth, Sibyl, Gulf Park College, Gulfport, Mississippi.....1930
Koch, Cora M., 3817 Dudley Street, Lincoln, Nebraska.....1930
Koelz, Dr. Walter, University Museum, Ann Arbor, Michigan.....1929
Koffel, Gerald L., 1012 Gorgas Street, Louisville, Ohio.....1928
Krug, Carl B., % George Krug, Minonk, Illinois.....1930
Kubichek, W. F., Coe College, Cedar Rapids, Iowa.....1926
Kucera, William, R. F. D. No. 2, Box 37, Tyndall, South Dakota.....1931
Kummerloewe, Dr. Hans, Cichorius Strassa 6 III, Leipzig, Germany.....1931
Kuser, J. Dryden, Bernardsville, New Jersey.....1913
LaMar, Kate E., 1253 Forty-second Street, Des Moines, Iowa.....1930
Lang, Libbie M., 2837 High Street, Des Moines, Iowa.....1930
Larson, Adrian, 611 E. 14th Street, Sioux Falls, South Dakota.....1924
Castretto, C. B., 260 California Street, San Francisco, California.....1930
Lawrence, A. G., City Health Dept., Winnipeg, Manitoba, Canada.....1928
Lee, Mrs. Arthur, Fourteenth and Locust Streets, Atlantic, Iowa.....1926
Leedy, Chas. A., % The Telegram, Youngstown, Ohio.....1927
Lewis, Edward H., Catalina Bird Park, Avalon, California.....1930
Lewis, Merriam G., 512 Highland Road, Lexington, Virginia.....1930
Lewis, Walter E., Gate, Oklahoma.....1927
Lincoln, Frederick C., Bureau of Biological Survey, Washington, D. C.....1915
Linsdale, Dr. Jean M., Museum of Vertebrate Zoology, University of California, Berkeley, California.....1928
List, E. E., % Shurtleff College, Alton, Illinois.....1931
Lively, E. L., Hillcrest, Fairmont, West Virginia.....1924
Livingston, Phillip Atlee, Box 302, Narbeth, Pennsylvania.....1926
Lloyd, C. K., 12 North Elm, Oxford, Ohio.....1925
Lloyd, Hoyes, 582 Mariposa Avenue, Rockcliffe Park, Ottawa, Ontario, Can.....1922
Lodge, Fred S., 423 S. Stone Avenue, La Grange, Illinois.....1929
Lomax, Dr. Claude C., Dale, Indiana.....1921
Løppenthin, B., Sundholm B I, Copenhagen S., Denmark.....1930
Low, Seth H., 50 Glendale Road, Quincy, Massachusetts.....1931
Lowrie, E. R., 552 Oberlin Avenue, Lorain, Ohio.....1930
Luce, George W., R. F. D. No. 1, Hayward, California.....1923
Lundquist, Arthur, Peabody Hospital, Webster, South Dakota.....1930
Lyon, John D., Jr., Box 6, R. F. D. No. 1, Tucson, Arizona.....1931
McCabe, Olivia, 3516 Fifth Street, Des Moines, Iowa.....1925
McCann, Horace D., Box 175, Paoli, Pennsylvania.....1928
McClun, Miss Carrie H., 805 Calhoun Street, West Liberty, Iowa.....1930
McCorkle, Eloise, % High School, Portage, Michigan.....1925
McCullough, Mabel, % Jewish Hospital. School of Nursing, Burnet Avenue, Cincinnati, Ohio.....1931
McDavitt, Edna J., 401 East Court Street, Paris, Illinois.....1930
McDavitt, Neva, 608 Normal Avenue, Normal, Illinois.....1930
McGill, Dr. J. T., Vanderbilt University, Nashville, Tennessee.....1929
MacLoghlin, Mrs. F. E., 43 Inglewood Drive, Hamilton, Ontario, Canada.....1928

McManus, Reid, Jr., Memramcook, New Brunswick, Canada 1931
Madson, Lillian M., 2519 Pierce Street, Sioux City, Iowa 1930
Malmrose, William T., Route 1, St. Libory, Nebraska 1931
Manuel, Canuto G., Museum of Zoology, Ann Arbor, Michigan 1928
Mara, D. H., 91 Lakewood Street, Worcester, Massachusetts 1930
Marburger, Clifford, Denver, Lancaster County, Pennsylvania 1924
Marshall, Raymond O., Box 99, R. F. D. No. 2, Leetonia, Ohio 1930
Martin, Early, Jr., 1909 Rio Grande Street, Austin, Texas 1929
Massey, Miss Anne, 15445 Lakeshore Boulevard, Cleveland, Ohio 1931
May, Dr. John B., Cohasset, Massachusetts 1928
May, W. H., Box 121, S. T. C., Fredericksburg, Virginia 1931
Mehl, A. K., Box 426, Fort Wayne, Indiana 1930
Meltreat, Burton W., Paullina, Iowa 1930
Michener, Harold, 418 N. Hudson Avenue, Pasadena, California 1926
Miller, Alden H., Museum of Vertebrate Zoology, Berkeley, California 1930
Miller, Bertha S., Capstone Farm, Kingston, New York 1930
Miller, Earl E., 1303 Monroe Street, Johnston City, Illinois 1931
Miller, Empey, Freeland, Michigan 1931
Miller, Mrs. H. C., 1110 Main Street, Racine, Wisconsin 1923
Miller, Miss Louise J., 2708 Elizabeth Avenue, Zion, Illinois 1929
Miller, Louise Kleim, 3730 Euclid Avenue, Cleveland, Ohio 1931
Miller, Lyle, Sharline, Ohio ..... †1928
Miner, Jack, Kingsville, Ontario 1930
Molloy, Mrs. R. B., 418 W. Third Avenue, Corsicana, Texas 1930
Moon, Miss M. Della, Trenton, Ohio 1927
Moore, George A., Dept. of Zoology, Oklahoma A. & M. College, Stillwater, Oklahoma 1927
Morse, Frank E., Boston Bird Book Co., 162 Boylston Street, Boston, Mass. 1926
Morse, George W., 318 East Ninth, Tulsa, Oklahoma 1920
Mothershead, Mrs. Geo., 305 W. Main, Earlington, Kentucky 1930
Mousley, H., 4073 Tupper Street, Westmount, Montreal, Quebec, Canada 1922
Mueller, Mrs. Hans, Willows Terrace, Apt. 81, Louisville, Kentucky 1923
Murray, Ethel R., 3911 Fourth Avenue, Sioux City, Iowa 1930
Murray, J. J., Rev., Lexington Presbyterian Church, Lexington, Virginia 1931
Musselman, T. E., 124 South Twenty-fourth Street, Quincy, Illinois 1923
Myers, Mrs. Harriet W., 311 South Avenue, 66, Los Angeles, California 1930
Nauman, E. D., 420 S. Shuffleton Street, Sigourney, Iowa 1923
Nelson, James, Stephen, Minnesota 1929
Nelson, W. C., 4024 Grand Avenue, Des Moines ,Iowa 1925
Newton, Thomas Dodd, 6826 Clyde Avenue, Chicago, Illinois 1918
Nichols, Harvey, 559 Burton Avenue, Waterloo, Iowa 1930
Northcutt, Charles E., Court House, Columbia, Missouri 1930
Norton, Arthur Herbert, 22 Elm Avenue, Portland, Maine 1894
Odum, Eugene, Box 792, Chapel Hill, North Carolina 1930
Ortman, Mrs. Enid D., 4660 South Franklin, Englewood, Colorado 1930
Overing, Robert, Landover, Maryland 1930
Paff, William A., 916 Paxinosa Avenue, Easton, Pennsylvania 1928
Palmer, Miss Mary C., 760 Midlothian Boulevard, R. F. D. No. 2, Youngstown, Ohio 1927
Palmer, Walter G., 142 Linden Avenue, Clayton, Missouri 1930
Patch, Edith M., College Road, Orono, Maine 1930
Patrick, Dr. Leon, Smith Grote Building, Orange, California 1931
Patterson, J. E., Jackson County, Pinehurst, Oregon 1930
Paul, Dr. R. D., 1358 East Forty-seventh Street, Chicago, Illinois 1928
Peabody, Rev. P. B., 2011 Park Avenue, Topeka, Kansas 1930
Pearson, Dr. T. Gilbert, 1974 Broadway, New York City ..... †1931
Pegram, R. B., 3rd, Biltmore Apts., Apt. 7B, Atlanta, Georgia 1931
Pellett, Frank C., Hamilton, Illinois 1926
Pellew, Miss Marion, Box 455, Aiken, South Carolina 1920
Pennell, Edna, 5 West Lamartine Street, Mount Vernon, Ohio 1931

Perin, Miss Kate, Withrow High School, Madison and Erie Avenues, Cincinnati, Ohio....1931
Peterson, Alfred, Lock Box 211, Pipestone, Minnesota....1931
Peyton, Sidney B., R. F. D. No. 2, Fillmore, California....1930
Phillips, John M., 2227 Jane Street, S. S., Pittsburgh, Pennsylvania....1930
Pickens, A. L., 4029 Life Sciences Building, University of California, Berkeley, California....1927
Pierce, Charles W., Boynton, Florida....1926
Pierce, Fred J., Winthrop, Iowa....1921
Pierce, John T., Anita, Iowa....1930
Pierce, Wright M., Box 343, Claremont, California....1926
Pirnie, Dr. Miles D., 117 Center Street, East Lansing, Michigan....1928
Polk, Ben K., 3700 Grand Avenue, Des Moines, Iowa....1930
Post, William S., 101 Park Avenue, New York, New York....1931
Pote, Orville D., Box 249, Halstead, Kansas....1930
Potter, Mrs. Harry Devereaux, 1590 Rydal Mount Road, Cleveland Heights, Ohio....1931
Potter, Julian K., 437 Park Avenue, Collinswood, New Jersey....1916
Pough, Richard H., 4 Lenox Place, St. Louis, Missouri....1924
Preble, Edward A., U. S. Biological Survey, Washington, D. C....1929
Presnall, Mrs. Clifford C., Yosemite National Park, California....1930
Raglin, Wilfred M., 216 W. Michigan Avenue, Ypsilanti, Michigan....1930
Rahe, Carl W., 4666 Turney Road, Garfield Heights, Cleveland, Ohio....1931
Rahn, Hermann, 107 Maple Avenue, Ithaca, New York....1931
Ramsden, Charles Theodore, Apartado 146, Guantanamo, Cuba....1914
Rapp, F. W., Vicksburg, Michigan....1926
Ray, Edward M., Fredonia, Kentucky....1929
Reeder, J. T., 318 College Avenue, Houghton, Michigan....1926
Reineking, Mrs. A. S., Box 384, Harvey, North Dakota....1930
Reis, C. O., 646 Juanita Avenue, Los Angeles, California....1931
Rich, Dr. Guy C., 1820 El Cerrito Place, Hollywood, California....1914
Ricks, Jesse J., 30 East 42nd Street, New York City....1931
Richardson, Carl, Altamont Auto Park, Klamath Falls, Oregon....1926
Roberts, Dr. Francis L. R., 419½ So. Governor Street, Iowa City, Iowa....1924
Robertson, John McB., Buena Park, California....1926
Robinson, Anthony W., 780 College Avenue, Haverford, Pennsylvania....1930
Rosewall, O. W., Dept. of Zoology, Louisiana State University, Baton Rouge, Louisiana....1931
Ross, Julia E., 921 Thirteenth Street, Sioux City, Iowa....1923
Rottenstein, Vilma, 2907 Scottwood Avenue, Toledo, Ohio....1931
Rouse, Miss Lorene A., Berrien Springs, Michigan....1930
Rowan, Prof. William, Alberta University, Edmonton, Alberta, Canada....1925
Rowlet, L. A., Jamestown, North Dakota....1930
Royer, M. L., 350 Beech Street, Berea, Ohio....1931
Ruffin, Winford A., Box 247, Auburn, Alabama....1925
Sampson, W. B., 1005 North San Joaquin Street, Stockton, California....1927
Sargent, William Dunlap, 404 W. 116th Street, New York, New York....1931
Saunders, George B., McGraw Hall, Cornell University, Ithaca, New York....1926
Schafer, John J., R. F. D. No. 2, Port Byron, Illinois....1926
Schaller, R. A., 124 South College Drive, Bowling Green, Ohio....1930
Schaub, Mrs. J. B., 1040 Isabella Street, Wilmette, Illinois....1930
Scott, E. N., R. F. D. No. 5, Loveland, Ohio....1930
Schultz, Miss Helen, Teachers College, Fredericksburg, Virginia....1929
Shannon, Wayland E., 1160 Talbot Avenue, Jacksonville, Florida....1930
Sharp, Vernon, 1908 Acklen Avenue, Nashville, Tennessee....1924
Shaw, Mrs. Elizabeth M., 2417 Rosswood Avenue, Richmond, Virginia....1931
Sheldon, Mrs. Addison, 1319 South Twenty-third, Lincoln, Nebraska....1930
Sheldon, H. E., 21 Norwood Avenue, Norwalk, Ohio....1930
Shipman, Chas. M., 114 Ridge Road, Willoughby, Ohio....1930
Shirling, Prof. A. E., 3849 East Sixty-second Street, Kansas City, Missouri....1924

Shull, Miss Mildred, 126 East Queen Street, Chambersburg, Pennsylvania....1928
Simon, Clarence E., 15436 Marshfield, Harvey, Illinois....1930
Simpson, Orval, 865 Auburn Road, Winnetka, Illinois....1928
Slate, John B., Sigourney, Iowa....1930
Smiley, Daniel, Jr., Mohonk Lake, New York....1930
Smith, Mrs. Albert W., 11333 Bellflower Road, Cleveland, Ohio....1931
Smith, Alta, 495 Columbia Street, Leetonia, Ohio....1931
Smith, Mrs. Harvey C., Britt, Iowa....1930
Smith, Lewis MacCuen, 218 West Chelten Street, Germantown, Philadelphia, Pennsylvania....1931
Smith, Luther Ely, Suite 1554 Bell Telephone Building, St. Louis, Missouri....1928
Smith, Napier, Bank of Montreal, Montreal West, Quebec, Canada....1928
Smith, O. Warren, 120 Church Street, Oconomowoc, Wisconsin....1923
Smith, Philbrick, U. S. S. New Mexico, Box 17, Philadelphia Navy Yard, Philadelphia, Pennsylvania....1930
Smith, Roy H., 183 North Prospect Street, Kent, Ohio....1925
Smith, Rufus A., Box 578, Shreveport, Louisiana....1930
Smith, Wendell Phillips, Wells River, Vermont....1921
Smyth, Dr. L. C. R., 2287 Ogontz Avenue, Lakewood, Ohio....1926
Snyder, L. L., Royal Ontario Museum of Zoology, Bloor Street and Avenue Road, Toronto 5, Ontario, Canada....1929
Somerville, G. P., Hammondsport, New York....1930
Speed, Mrs. James B., 505 West Ormsby Avenue, Louisville, Kentucky....1925
Sprot, G. D., Cobble Hill, B. C., Canada....1930
Stearns, Mrs. B. M., 111 West Fifty-first, Des Moines, Iowa....1930
Sterry, Miss Elizabeth, Teachers College, San Marcos, Texas....1930
Stevens, Prof. O. A., State College Station, Fargo, North Dakota....1926
Stevenson, James, Gates Mills, Ohio....1931
Stewart, Mrs. J. E., 1245 Thirty-seventh, Des Moines, Iowa....1929
Stewart, Paul A., Leetonia, Ohio....1925
Stiles, K. A., 1933 Packard, Ann Arbor, Michigan....1928
Stine, Perna M., State Teachers College, Minot, North Dakota....1931
Stockbridge, Charles Augustine, 2323 Webster, Fort Wayne, Indiana....1914
Stooksberry, 1301 East 31st Street, Savannah, Georgia....1931
Storer, Dr. Tracy I., Division of Zoology, University Farm, Davis, California....1928
Strabala, Lon B., Box 129, R. F. D. No. 1, Leetonia, Ohio....1928
Strange, Mrs. Anna R., White River, South Dakota....1930
Sullivan, Walter F., 351 Turk Street, San Francisco, Califonria....1925
Sumner, E. L., 1652 Euclid Avenue, Berkeley, California....1931
Sumner, E. L., Jr., New Museum of Vertebrate Zoology, Berkeley, Calif....1929
Swanebeck, Harvey, R. F. D. No. 1, Fenton, Michigan....1926
Swan, Reta, 856 Riverview Avenue, Dayton, Ohio....1930
Swanson, Gustav, 3305 Forty-seventh Avenue, South, Minneapolis, Minnesota....1927
Swedenborg, Ernie D., 4905 Vincent Avenue, South, Minneapolis, Minnesota....1929
Swenk, Mrs. Myron H., 1410 North Thirty-seventh Street, Lincoln, Nebraska....1925
Taber, William Brewster, Jr., Greenwood Farm, Kansas, Illinois....1926
Tait, Miss Blanche, Georgia State College for Women, Milledgeville, Georgia....1929
Tavener, P. A., Victoria Memorial Museum, Ottawa, Ontario, Canada....1925
Teachenor, Dix, 1020 West 61st Street, Kansas City, Missouri....1923
Test, Frederick H., 511 Russell Street, West Lafayette, Indiana....1931
Thomas, Mrs. Arthur P., 818 East 54th Street, Indianapolis, Indiana....1928
Tinkham, Ernest R., Division of Entomology, University Farm, St. Paul, Minnesota....1930
Todd, R. Loyal, Milton, Wisconsin....1930
Tomkins, Ivan R., U. S. Dredge Morgan., Savannah, Georgia....1931
Tonitz, Hans, Frankfurter Strasse 2-III, Leipzig, Germany....1930
Turner, Mrs. W. A., 621 South 18th Street, Clarinda, Iowa....1931
Turrell, Loring W., Smithtown Branch, Long Island, New York....1925
Turtle, Lancelot J., Rosemount Khock, Belfast, Ireland....1930
Tuttle, Henry C., 31 State Street, Boston, Massachusetts....1930

Tyrrell, Mary A., 5035 Waller Avenue, Lincoln, Nebraska....1930
Tyrrell, W. Bryant, 812 Ridgedale Avenue, Birmingham, Michigan....1929
Uhler, Francis, U. S. Bureau of Biological Survey, Washington, D. C....1931
Underdown, C. Eliot, Field Museum of Natural History, Roosevelt Road and Lake Michigan, Chicago, Illinois....1931
Vetter, Dr. Charles, 18 East 48th Street, New York City....1931
Wacherbarth, Miss Neva, The Wedgewood, Woodlawn at 64th Street, Chicago, Illinois....1930
Walker, Mrs. Emily Barry, George Peabody College for Teachers, Nashville, Tennessee....1929
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